ENGINEERING NEWS-RECORD

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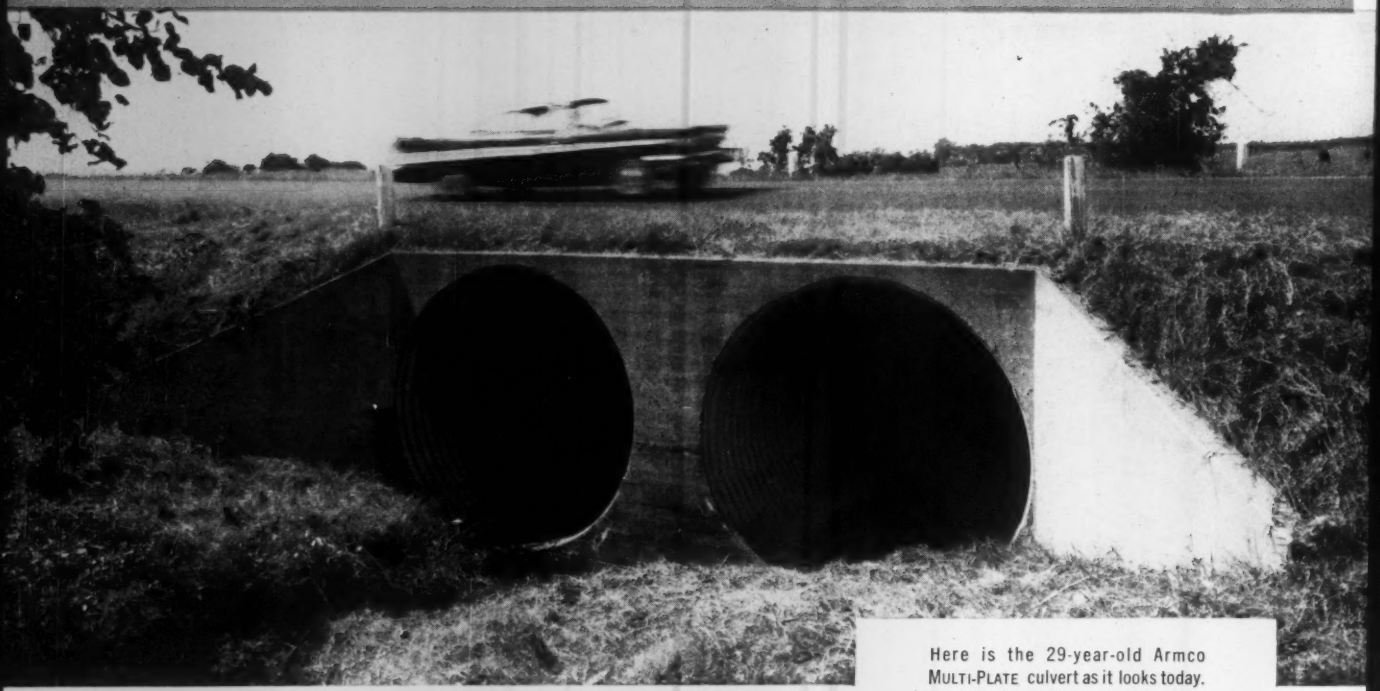
Armco MULTI-PLATE Pipes Installed in 1931 Still in Excellent Shape

New steels are born at Armco



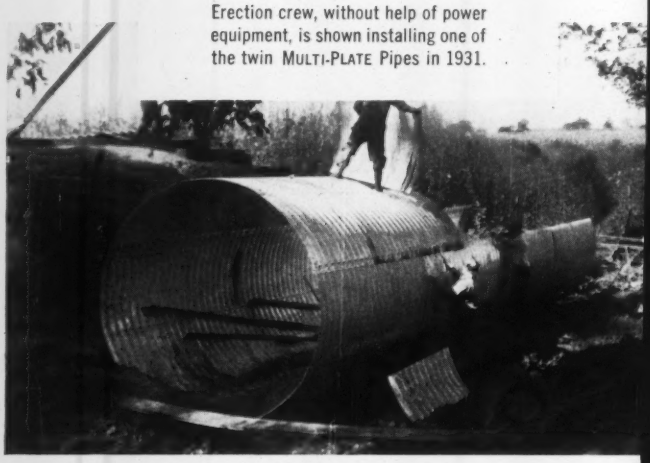
Here is the 29-year-old Armco MULTI-PLATE culvert as it looks today. Each pipe is 120 inches in diameter, 3 and 5 gage, and 40 feet long.

Twenty-nine years ago, in Sangamon County near Springfield, Illinois, a county highway crew installed a twin Armco MULTI-PLATE® Drainage Structure — one of the first — to replace an old, narrow bridge. Today, this culvert is still in excellent condition.

This is convincing evidence of durability. Long service life is one reason why engineers and contractors are using these corrugated metal drainage structures on many Interstate and other limited-access highways all over the country.

For dimensional and engineering information, write us for literature on Armco MULTI-PLATE Drainage Structures —or ask your local Armco Sales Engineer. Armco Drainage & Metal Products, Inc., 4800 Curtis St., Middletown, Ohio.

Erection crew, without help of power equipment, is shown installing one of the twin MULTI-PLATE Pipes in 1931.



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Available in ⅛" to 1½" diam. in strengths to 65,000 lbs. in 3,000 psi concrete

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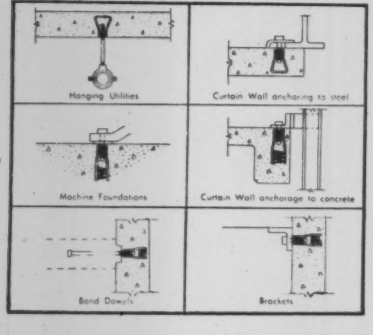

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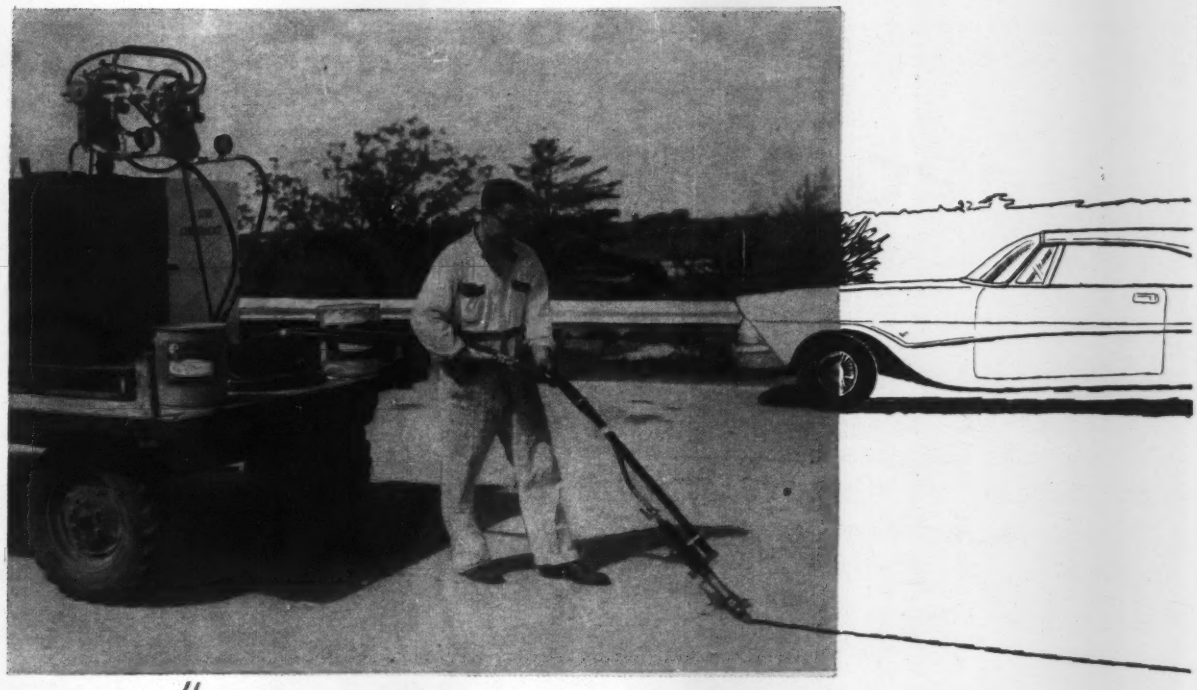

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Presstite Joint Sealer sets up within 60 minutes

...offers maximum adhesion...resistance to impregnation

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It offers many physical properties and characteristics that are far superior to the regular sealers. For example:

- Greater resistance to impregnation by foreign matter.
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- Fast curing, non-tracking. Sets up track-free within approximately an hour after application.
- Maximum adhesion to clean concrete surfaces.
- High cohesive strength.
- Resists repeated cycles of freezing and thawing.

ALSO AVAILABLE: **PRESSTITE #55-MIL JOINT SEALER. Designed for military and commercial airfields exposed to action and operational requirements of jet aircraft. Resists jet blast, heat, fuel and oil . . . cures quickly . . . will not track. CONSEAL CONCRETE JOINT CURING TAPE. For freshly sawed or formed PCC joints. Protects against moisture loss from joints . . . aids in curing . . . reduces spalling . . . keeps joints clean until sealed.**

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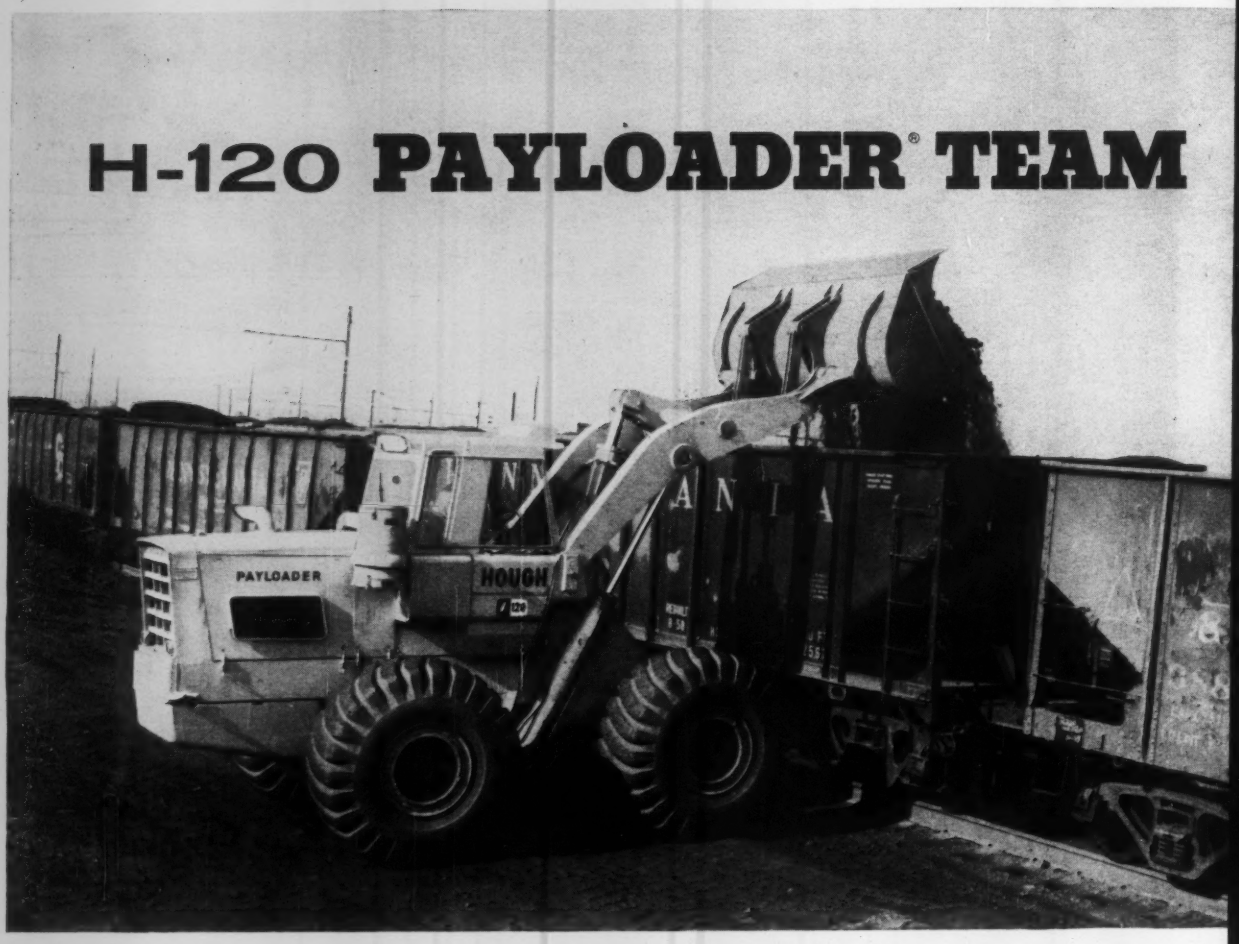

4 Huge Model H-120 "PAYLOADER" Units Were Selected For The Job

"The better balance, speed and maneuverability of the H-120 makes it a better buy than larger competitive models tested on this job," says Charles E. Young, Job Superintendent.

SPEEDS ORE-HANDLING OPERATION

for Armour Excavating, Inc.

Armour Excavating, Inc. is one of the contractors that has expanded its operations into the ore-handling field. Its share of such work has increased with the rapid growth of the Port of Philadelphia as an important iron ore handling center.

The Pennsylvania Tidewater Dock Co., at Pier 122 South, has a 4-crane ore dock capable of unloading 6,000 tons of ore an hour, which the Pennsylvania Railroad transports in cars to a number of steel mills in this part of the country. They have areas available for the ground storage of between 3 and 4 million tons of ore, the ground having been previously prepared by Armour.

One phase of Armour's ore-handling work consists of loading railroad cars with the various types of ore which have been stockpiled along miles of track. This work has been greatly expedited by the recent purchase of 4 Model H-120 "PAYLOADER" units from M-W EQUIPMENT CO., Division of Metalweld, Inc.

These "PAYLOADER" units pick up the ore from the stockpile, carry it to the track and load it directly into railroad cars. Their speed and mobility enable them to travel over this site in a few minutes. In addition, they move loaded cars along the track and bring in empty cars to be loaded. No other equipment is needed for this entire operation.

Joseph Keenan, an operator, says, "I like the H-120 better than anything I've run. It's faster, comfortable and easy to handle. The balance is perfect and the safety and visibility is tops, because of the lift arm design. The high lift and long reach let me center the loads in the gondolas as the railroad demands with this heavy ore."

The Model H-120, conservatively rated at 12,000 lbs. operating capacity, is the largest of the "PAYLOADER" line of 20 models in 8 capacity ranges. Your Hough Distributor with his complete parts and service facilities, backed by Hough field service personnel, invites your inquiry. See him today.

The "PAYLOADER" units need no 'dozer or other assistance in the loading operations, because they also do their own towing and car spotting, dozing, stockpile trimming and clean-up work.

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☐ **Send data on Model H-120 "PAYLOADER"**
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Title.....

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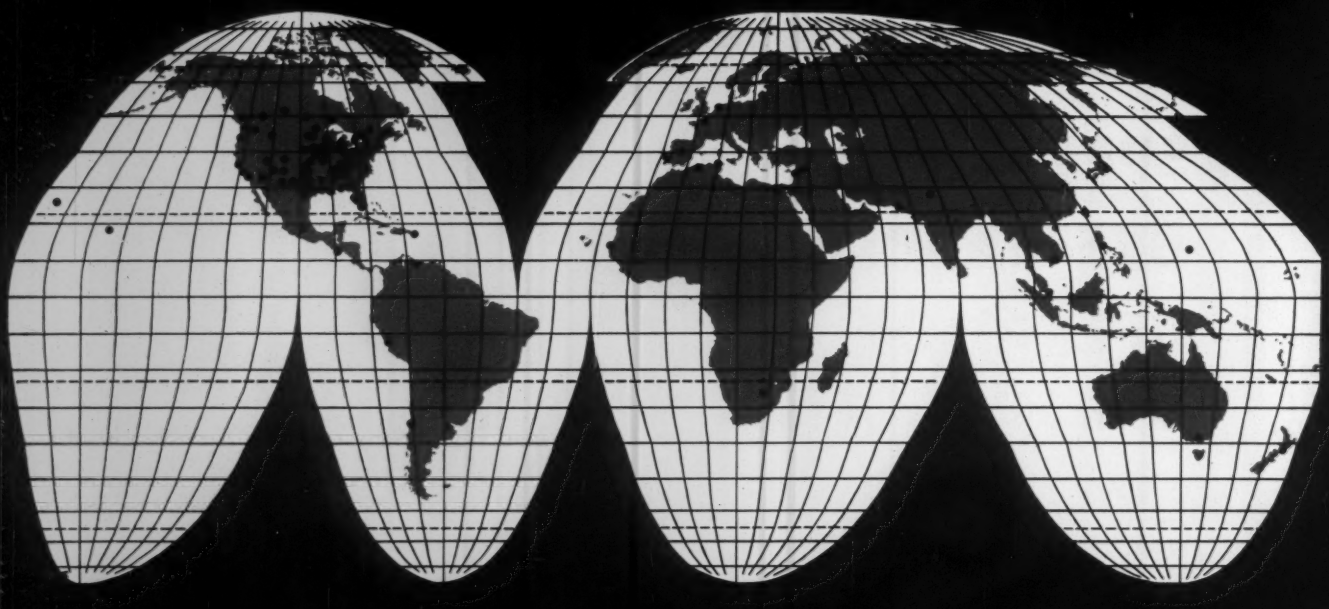

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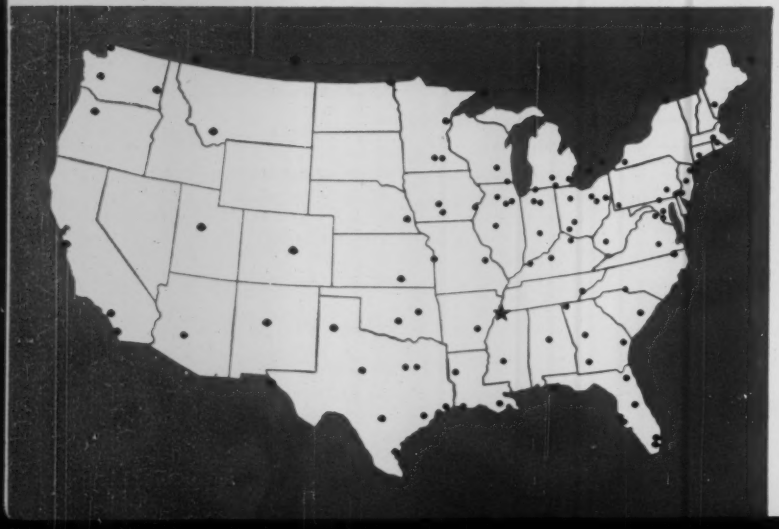

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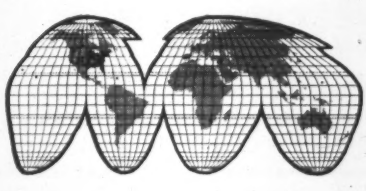


Reader Comment

Engineer Diplomats Go Abroad

SIR—Seventy-nine members of the Engineers Club of Philadelphia recently ended three weeks of sightseeing and meetings in England, Holland, Germany, Switzerland, Italy and France. They had traveled 2,500 miles across the continent by chartered buses, enjoyed a boat trip over the North Sea, and a steamer journey down the Rhine River. This may have been the first charter flight of such an engineering group.

While the club members represented every phase of the profession, more than 25% were engaged in the fields of civil enginering or construction. These men had an opportunity to examine dike and canal installations outside of Amsterdam, the extensive bridge building program across the Rhine, including the single-tower suspension bridge at Cologne, and tunnel construction in Switzerland's Susten and Gotthard passes.

The trip was a highly successful experiment in furthering international relations. Allan H. Kidder, past vice president of the National Society of Professional Engineers and president of the Engineers Club of Philadelphia, accepted honors bestowed on the group at meetings in three countries. The 79 members of the tour were honored in London by representatives of the United Kingdom. The Americans exchanged ideas in Amsterdam with the Koninklijk Instituut Van Ingenieurs, representing both the Netherlands' government and private industry. In Bonn, the West German Association of Architects and Engineers similarly honored the visitors.

The job of organizing and leading such a trip was well worth the effort, because of the purpose and philosophy underlying it.

I would describe it this way:

The majority of people seem to judge nations as entities, instead of as a population comprised of individuals. One has no right to form an opinion of the masses based on singular incidents in the news. The only path to understanding is that of knowledge gained through personal discussions. And understanding is the key which will open the door to world peace. A friendly, informal meeting of people from two nations, stressing common ground, such as our profession, is most assuredly the beginning of that path.

ALAN B. KAMMAN
Bell Telephone Co. of Pennsylvania
Philadelphia, Pa.

Roof Cost Figures Challenged

SIR—We have read the article "Alternate Designs Pay Off in Low Cost Jobs" by Robert R. Adams (ENR Sept. 17, 1959, p. 60) with considerable interest.

As fabricators of T-Chord Longspan Steel Joists, we take exception to some of the cost figures used in this article. We would be able to furnish and erect longspan joists and wide rib galvanized steel roof deck for less than half of the cost illustrated in the "Initial Cost of Alternate-Roof Construction" table.

Initial Costs of Alternate Roof Constructions

	Concrete Beams Steel Deck	Longspan Steel Joist Steel Deck
Prestrsd. Conc. Bms.	$10,000	
Conc. Tilt-up Wall	17,000	$16,500
Columns	860	860
Longspan Steel Joists		8,100
@Column Lines Steel Beams		1,100
Longspan Steel Deck	19,600	
Standard Steel Deck		4,800
Roofing	3,600	3,600
Vapor Seal & Extra Insul.	3,700	2,900
TOTAL:	$54,900	$37,900

Comparison of 25 Years Cost

A. 1st Cost Difference	$17,000	$00
B. Financing diff. 1st Cost Interest	12,800	00
C. Diff. in Ins. on Building	00	500
D. Diff. in Ins. Contents	00	1,250
TOTAL:	$29,800	$1,750

The final result as shown on the enclosed revised table shows that a longspan steel joist and roof deck design is $28,000 lower in cost than the concrete beam and steel deck design.

Since many engineers and architects will base the design of future buildings upon the cost figures shown in your article, we feel obligated to put the record straight.

WILLIAM A. BUSCH, P. E.
Haven-Busch Company
Grandville, Mich.

▶ We do not know the basis for Mr. Busch's figures, but assume they are based on building areas different from those we used in our analysis. Our figures were based on original and future construction.

Long-span steel decking and prestressed concrete beams were bid at

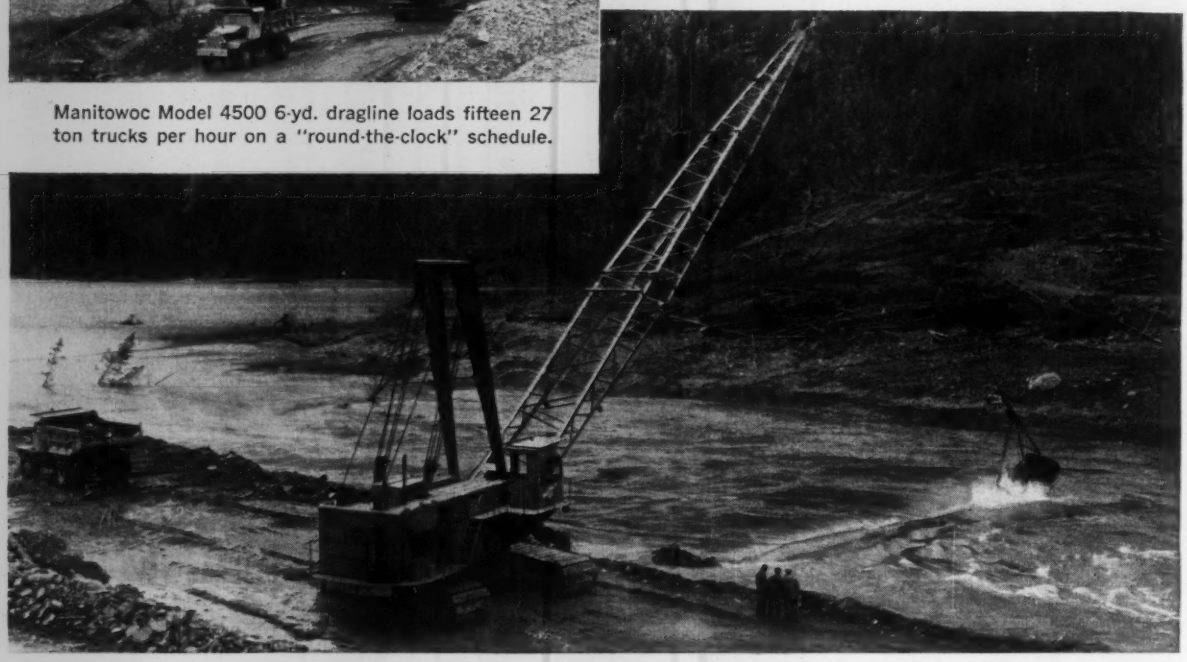
(*Reader Comment continued p. 12*)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Manitowoc Model 4500 6-yd. dragline loads fifteen 27 ton trucks per hour on a "round-the-clock" schedule.

Flood threat created by earthquake is tamed with

MANITOWOC dragline



When the violent earthquake of last August hit near Ennis, Montana, the Madison River between Ennis and Hebgen dam was blocked by a 43 million cubic yard landslide. Plugged by tons of dirt and rocks, the river immediately backed up to form a lake over five miles long and up to 200 feet deep. Quake lake — as it is known by local residents — overflowed shortly after the earthquake, creating a dangerous flood threat to downstream communities.

At this point the U. S. Army Corps of Engineers bulldozed a 200 foot wide spillway along the length of the slide . . . a plan not entirely successful because of erosion at the lower end of the spillway.

A 6-yd. Manitowoc dragline owned by the F&S Contracting Company of Butte worked 'round the clock cutting down the spillway to lower the lake level. The Manitowoc loaded fifteen 27 ton trucks an hour. The spillway channel was deepened at the rate of .7 ft. each 12-hour shift. Early fears of flood danger were removed as the level of Quake lake was lowered by over 50 feet and shortened from seven miles to four.

Your Manitowoc distributor has full information on the Manitowoc dragline described here. Though your job problems may not be of earthquake size, he can analyze your operation and suggest the Manitowoc machine most profitable for you.

Manitowoc

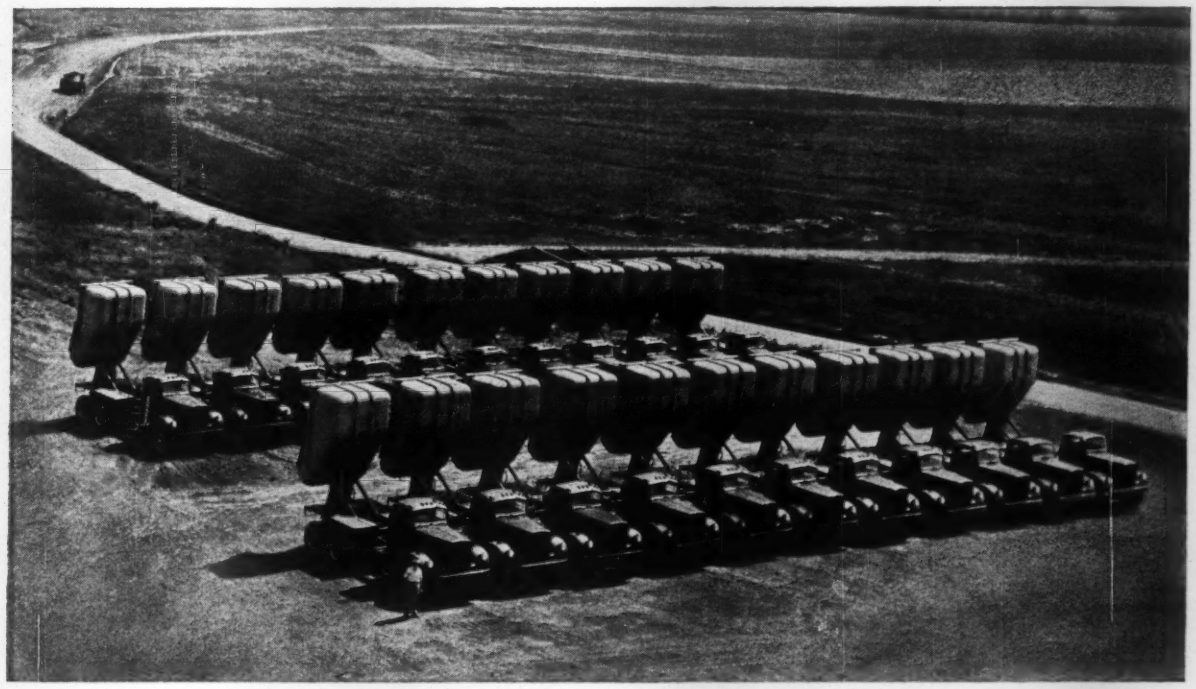
MANITOWOC ENGINEERING CORP.

(A Subsidiary of The Manitowoc Company, Inc.)

Manitowoc, Wisconsin

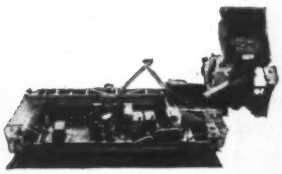
SHOVELS	CRANES	DRAGLINES	TRENCH HOES
1¼ — 6 YDS.	25 — 125 TONS	1¼ — 6 YDS.	1¼ — 3 YDS.

A major contractor speeds big concrete jobs with a fleet of Dumpcretes like this ...and so can you



You handle big yardages of concrete ... fast ... with Dumpcretes. Time and labor savings show up in a hurry on dams, reservoirs, power plants and similar mass concreting jobs. High discharge of Dumpcrete Body permits easy charging of concrete buckets, hoppers or conveyors. Dumpcretes are versatile, too ... when not used for concreting they'll haul earth, sand, aggregates—anything that flows! And Dumpcrete fleets, like the one shown above, really pay off on concrete paving projects!

The best way to get all the economies of the central-mixing, non-agitated hauling method on large *or* small paving jobs is to team Dumpcrete Bodies with Dumpcrete Spreaders. The fast, 90-seconds-from-truck-to-slab cycle of the Dumpcrete Spreader assures a high-production paving spread. And job efficiency improves because Dumpcretes reduce confusion at the paving site. Regardless of the total yardage handled, you can count on Dumpcretes and Dumpcrete Spreaders to cut your concrete placement costs.



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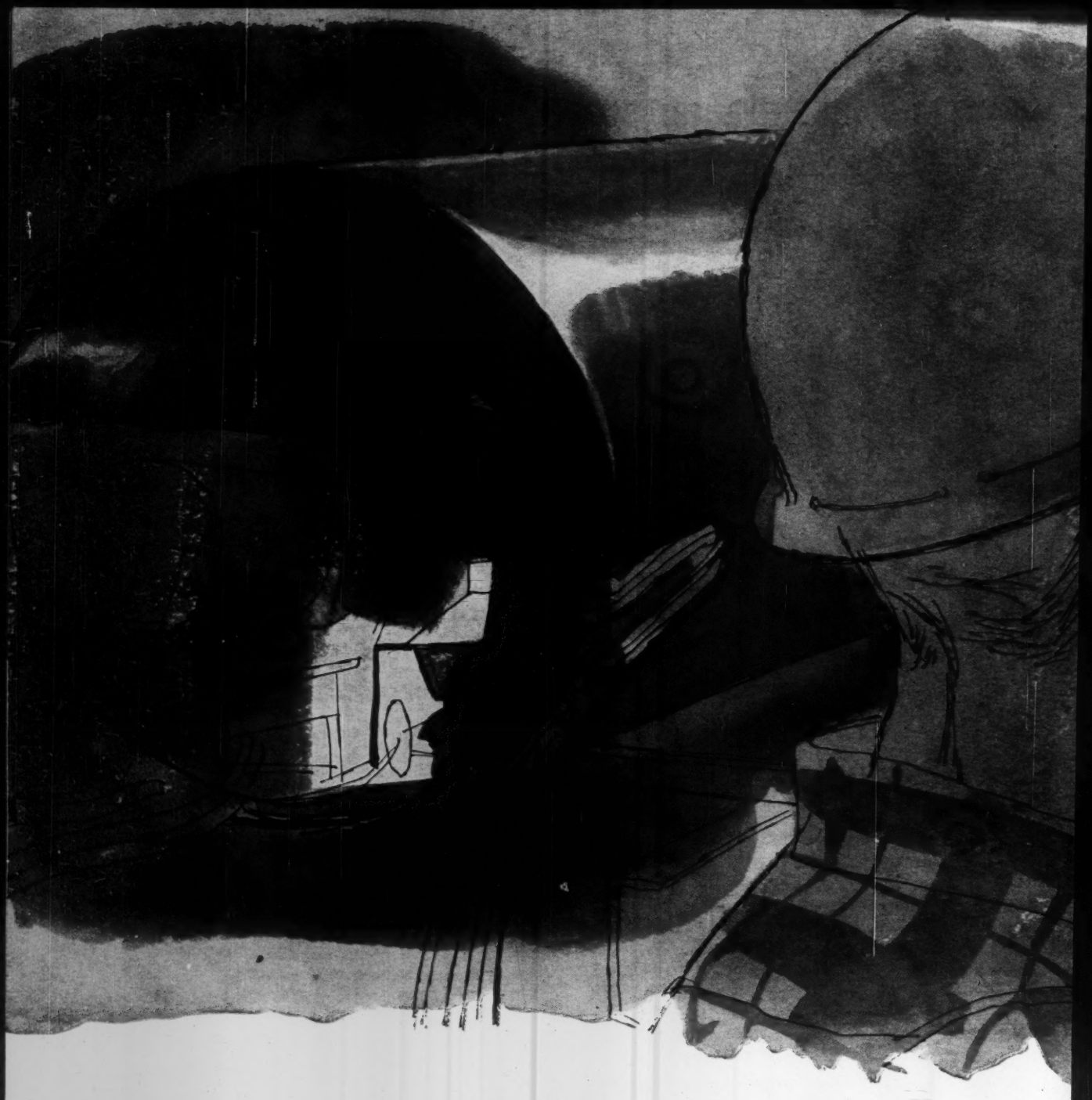

Spying on a weld

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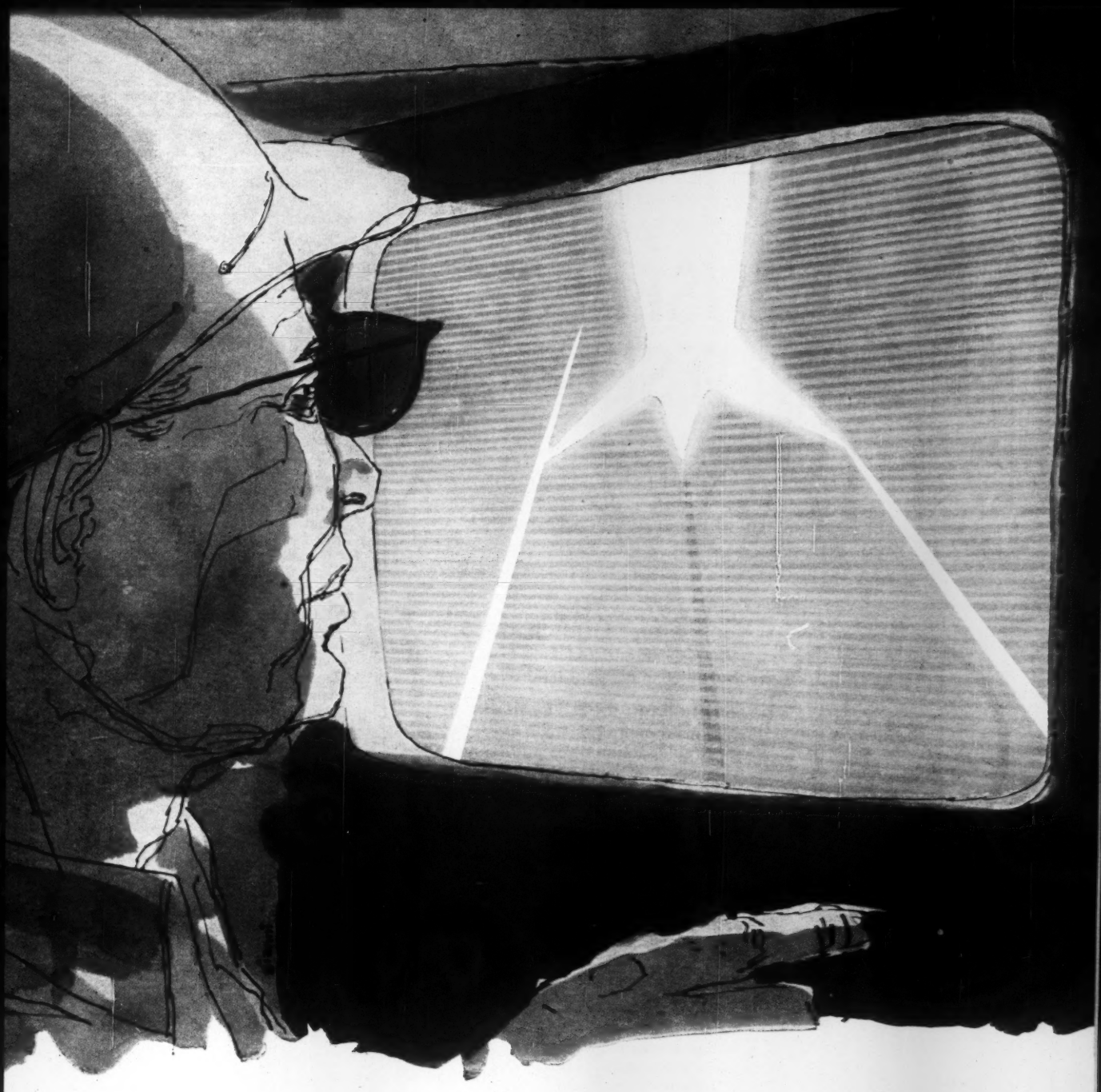
When the image flashes on the TV screen, the operator sees reference lines and uses them as a guide. This enables him to keep the electrodes for the inside weld centered on the seam of the formed plate. *In short:* the TV camera makes precise guiding of the welding possible.



The constant development and improvement of production techniques are just two of the reasons why National Tube is not only the largest but also the most experienced manufacturer of tubular products in the world. For more information on USS National Line Pipe, write to National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania. Ask for bulletin #23.

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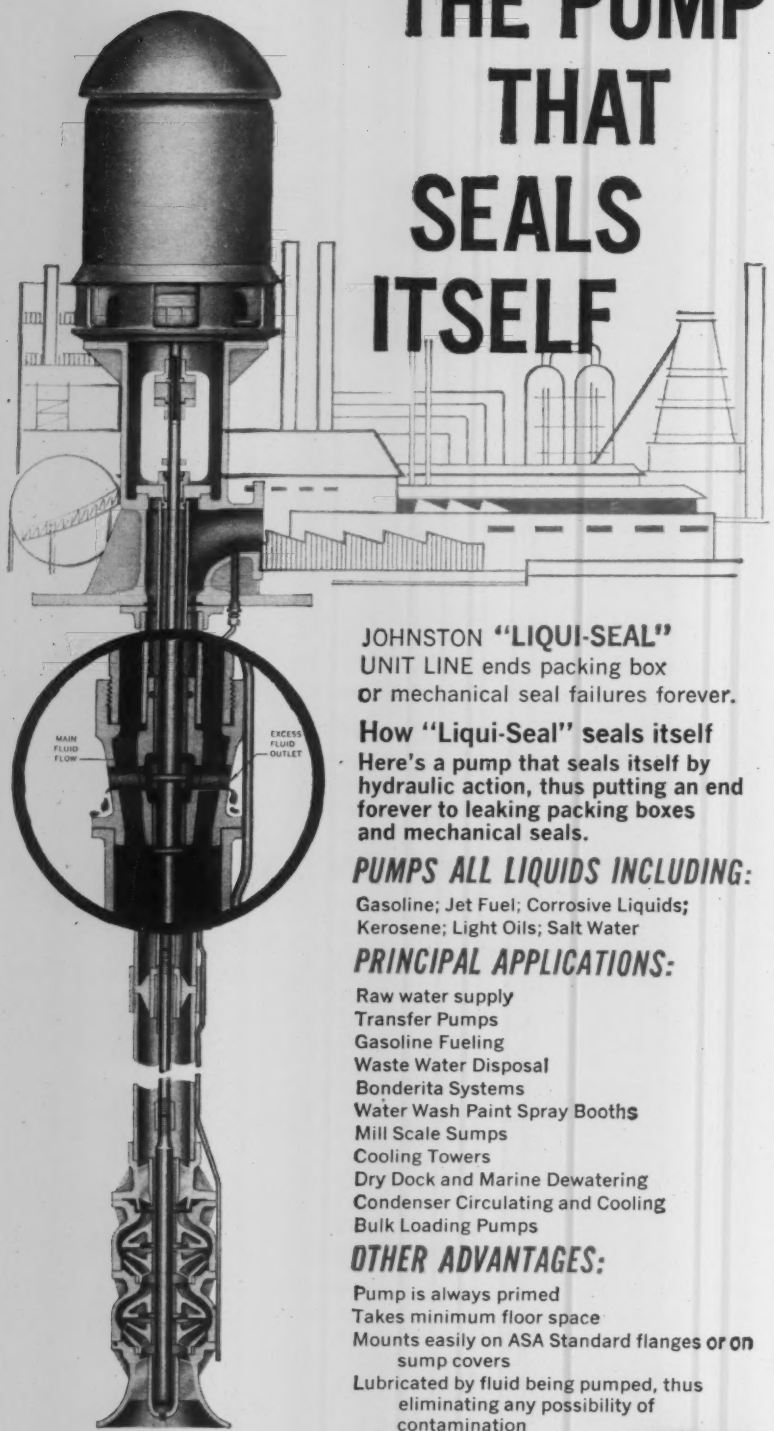

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. . . Reader Comment

less cost than as estimated for the original analysis. Local pricing conditions and insurance rates will affect the choice of structural components, and each project should be considered accordingly.

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ROBERT R. ADAMS
Cornell, Howland, Hayes & Merryfield
Corvallis, Oregon

Architects for the Hangar

SIR—In your excellent presentation of the hangar for Northeast Airlines (ENR Dec. 17, 1959, p. 56), our firm was given the complete credit for the design of the building. The architects for the project were Samuel Glaser and Associates of Boston, to whom we were the structural consultants.

WILLIAM J. LEMESSURIER
Goldberg, LeMessurier & Associates
Boston, Mass.

Shopper Stopper?

SIR—If the woman's viewpoint means anything these days, the supermarket of the future (ENR Jan. 7, p. 19) is doomed already.

Do you have any idea as to the number of timid souls who will never set foot on a moving stairway. And what provision has been made for the shopper who dashes in for just one or two emergency items? My pet peeve is shopping for groceries. Heaven deliver me from the new spiral-ramped horror!

MRS. C. A. PUTNAM
Morton S. Fine
Site Planners & Engineers
Hartford, Conn.

FOR YOUR CALENDAR . . .

American Society of Civil Engineers, annual meeting, Jung Hotel, New Orleans, La., Mar. 7-11. Write: W. H. Wisely, Executive Secretary, 33 W. 39th St., New York, New York.

American Concrete Institute, annual meeting, Commodore Hotel, New York City, Mar. 14-17. Write: American Concrete Institute, P. O. Box 4754, Redford Station, Detroit 19, Mich.

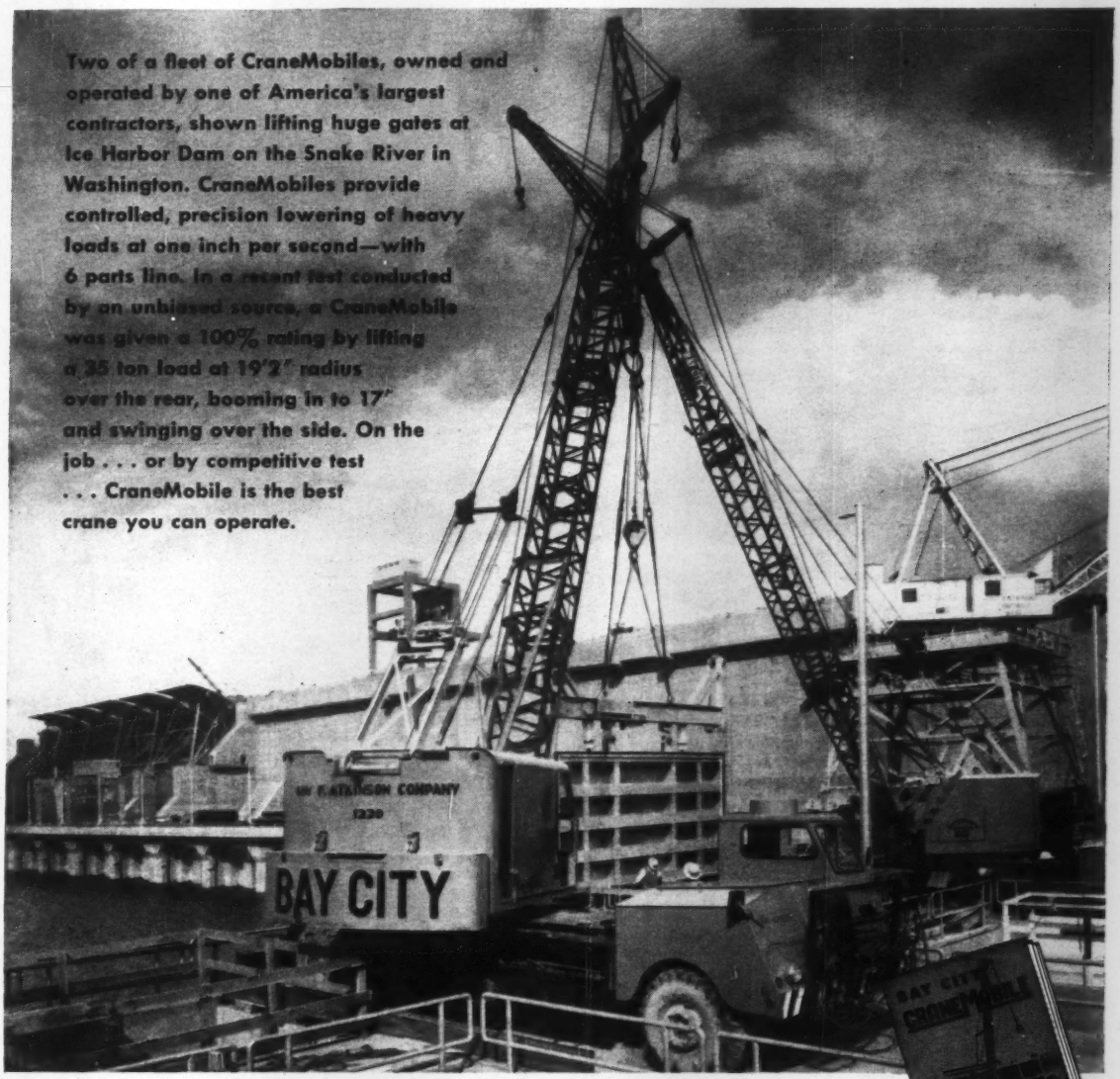
National Association of Corrosion Engineers, annual conference. Dallas, Tex. Mar. 15-17. Write: R. W. Huff, National Association of Corrosion Engineers, 1061-M & M Building, Houston 2, Tex.

Mississippi Valley Conference of State Highway Departments, annual meeting, Edgewater Beach Hotel, Chicago, Ill., Mar. 17-19. Write: Walter Johnson, Mississippi Valley Conference of State Highway Departments, State Highway Commission of Kansas, Topeka, Kan.

Associated General Contractors of America, Inc., annual convention, San Francisco, Calif., Mar. 21-24. Write: William G. Dooly, Associated General Contractors, 20th and E Sts. N. W., Washington 6, D. C.

American Power Conference, annual meeting, Hotel Sherman, Chicago, Ill., Mar. 29-31. Write: Conference Director R. A. Budenholzer, Mechanical Engineering Dept. Illinois Institute of Technology, 3300 Federal St., Chicago 16, Ill.

BAY CITY...THE BEST CRANE BY A DAM SITE!



Two of a fleet of CraneMobiles, owned and operated by one of America's largest contractors, shown lifting huge gates at Ice Harbor Dam on the Snake River in Washington. CraneMobiles provide controlled, precision lowering of heavy loads at one inch per second—with 6 parts line. In a recent test conducted by an unbiased source, a CraneMobile was given a 100% rating by lifting a 35 ton load at 19'2" radius over the rear, booming in to 17' and swinging over the side. On the job . . . or by competitive test . . . CraneMobile is the best crane you can operate.

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With the new streets—curbs and sparkling, silicon carbide-impregnated sidewalks of modern concrete

For 43 blocks of downtown streets, ...the pavement built to stay put

"The 'new look' of our downtown business district is causing plenty of excitement in and around Abilene!"

Says HENRY NABERS, *Abilene City Manager*

"Our bright new concrete streets and sidewalks are helping to bring shoppers back downtown. Business has really improved since the dedication ceremony.

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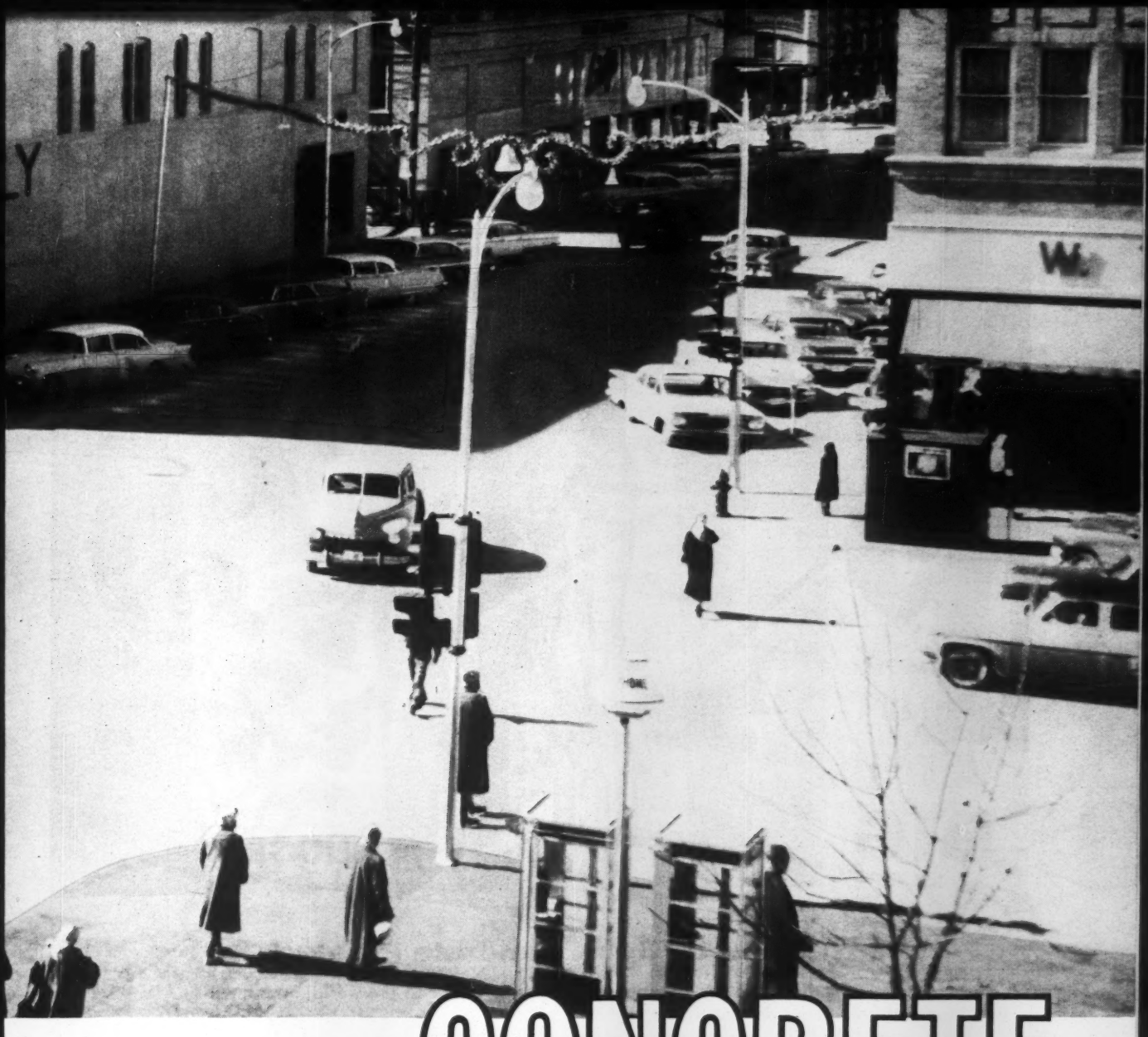

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major repairs. Even on the hottest days concrete doesn't get soft, tacky or slick. Traffic can't push its solid surface into ripples and washboards.

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ENGINEERING NEWS-RECORD

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CONTENTS

New Standards—Same Price Tag?..... 21
Rep. Blatnik: He Asks the Questions..... 22
John Day Site Is in the Dry..... 23
Politics Traps School Aid Bill..... 23
Mass Transit for LA? Can Do..... 24
Vote Total Water Project Cost?..... 24
Hawaii Ponders Lava Defense..... 25
Steel Girders Collapse on Job..... 25
Two Views of Tomorrow's City..... 26
$1 Billion Asked for Military..... 28
Bituminous Research Will Cost $1.3 Million.... 28
Tunnelers Top Own Record..... 32

FEATURES

Novel Bearings for a Bridge..... 34
Mud Shores a Deep Cut at Wanapum..... 42

NEW PRODUCTS

Fork Lift Carries 17 Tons..... 47
Belt Loader for Motor Grader..... 47

MEN AND JOBS

DMJM: Designers Designed to Grow..... 53
Holway Heads Tulsa Merger..... 56
Utah Names Burton Highway Director..... 56

BUSINESS AND FINANCE

States Walk the Budget Tightrope..... 86
Contractor Out as Redeveloper..... 86
Will Small Cars Cut Road Funds?..... 87

LABOR

Industry Seeks End to Strikes..... 89
Gray Ends Long Union Career..... 90

Reader Comment ... 7
Calendar 12
Washington Observer 19
Obituaries 61
Unit Prices 65
Materials Prices 66
Construction Reports. 67
Statistics, Indexes... 82
Editorials..... 100

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THE CONSTRUCTION WEEK

WHO WILL SUCCEED GRAY?—Lloyd A. Mashburn, general president of the lathers union, was most prominently mentioned in Miami last week as the probable successor of Richard Gray, who has resigned as president of the AFL-CIO Building and Construction Trades Department (see p. 90). Also mentioned were James McDevitt, director of AFL-CIO's Committee on Political Education, and Tom Murray, a carpenters union official.

NEW EQUIPMENT COMING—Now in production is a completely portable asphalt plant with automatic features normally found only in large semi-portable or permanent plants. Also, watch for the full-fledged entrance of a major crawler tractor manufacturer into the rubber-tired, front end loader field.

MORE REBUILDING PLANS—New York City Planning Chairman James Felt last week proposed rebuilding a 25-acre site on the Hudson River. The $100-million project would supplement a recent proposal by the Lower Downtown Manhattan Association for a $250-million World Trade Center on the East River.

PEACE HOPE FADES—The AFL-CIO plan for early adoption of new machinery for the arbitration of jurisdictional disputes between member unions is meeting with reverses in Miami this week. When the Executive Council opened its mid-winter meeting, there was no general agreement on how such a plan should work, and it looks as though a special convention on the issue will not be called.

EJC NEWSPAPER READY—Volume I No. 1 of a four-page tabloid-size paper will soon go to some 300,000 engineers. It will be Engineers Joint Council's first attempt at reaching all members of its constituent societies with a regular communication of its own.

WABASH PACT SIGNED—Under an enabling act passed last year by Congress, Illinois and Indiana have signed a bistate compact for development of the Wabash River Valley. Among the problems are flood-plain zoning, stream pollution and navigation.

RUSSIAN EQUIPMENT COMING?—Agreement by Russia to sell its cars in the U.S. is a symbol of willingness to sell "trucks, roadbuilding equipment and tractors . . ," says a Soviet spokesman.

LOWERING THE BOOM ON SNOW—Air Force jets are using sonic booms to set off safe snowslides along a highway in Glacier National Park. The planes crashed the sound barrier over accumulations of snow overhanging the highway. The blast triggered the slides, making it safe to remove snow from the road.

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WASHINGTON OBSERVER

- Here come the vetoes
- A spur for slum clearance?
- D. C. construction stalled

● **The $90-million-a-year sewerage construction bill is headed for President Eisenhower's first veto of the year.** The bill, a straight compromise between the House-passed $100 million and the Senate's $80 million, should clear Congress soon. The President had asked that the current $50-million-a-year authorization be trimmed to $20 million.

Mr. Eisenhower may try to soften the impact by proposing some tightening up of enforcement against cities and factories polluting streams. For instance, polluting a "navigable" stream might be substituted for the harder-to-prove federal offense of causing "interstate" pollution.

A similar veto threat faces the $1-billion emergency housing measure sponsored by Rep. Albert Rains (D., Ala.). It would authorize the government to purchase mortgages on medium-priced homes to help prop the housing market. Federal Housing Administrator Norman Mason has called the bill inflationary and unnecessary.

A cloud also hangs over the school construction bill passed by the Senate last week (see p. 23). The House is likely to cut the size of the Senate bill and drop the provision for funds to increase teacher salaries. The Senate bill contains authorization for $917 million to be spent each year for two years.

—

● **A controversial new government-sponsored report calls for sweeping changes in federal housing policy to step up slum clearance and public housing projects.**

A key point in the report would cut down the amount of federal control over local housing authorities and beef up their powers. The local agencies would be granted the right to (1) subsidize repair and home improvement loans, (2) subsidize rents to landlords and (3) take over mortgages that would be too expensive for private contractors and owners.

Another point of concern to construction is a recommendation that housing authorities acquire existing individual housing instead of building new structures. Such an experiment has been under way in Philadelphia for about a year. There, 200 rundown properties are being acquired, renovated and rented.

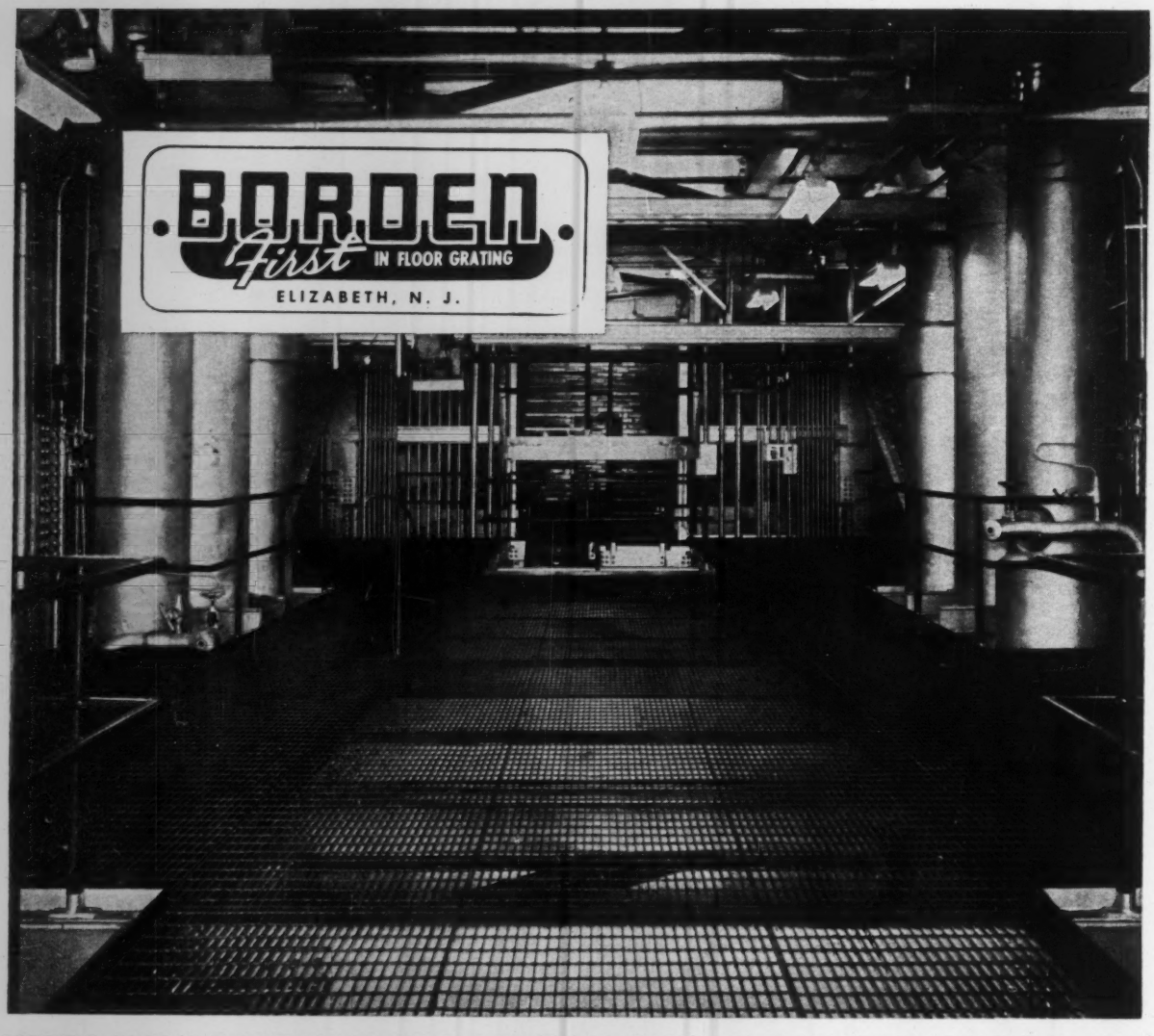
The report was prepared by Ernest H. Fisher, Columbia University housing economist, for FHA's Mason.

—

● **Dispersal for defense is the issue holding up construction of five new government buildings in Washington.** The Senate Public Works Committee withheld approval of the District of Columbia construction when it gave the go-ahead to the General Services Administration to build $190 million worth of federal buildings across the country.

Chairman Dennis Chavez (D., N. M.) will hold hearings on whether dispersal of defense and defense-related agencies should be continued.

Delayed is construction of the Federal Aviation Agency and the National Aeronautics and Space Administration Building. With dispersal up for consideration, the committee delayed all the proposed D. C. buildings held over from the old lease-purchase program.



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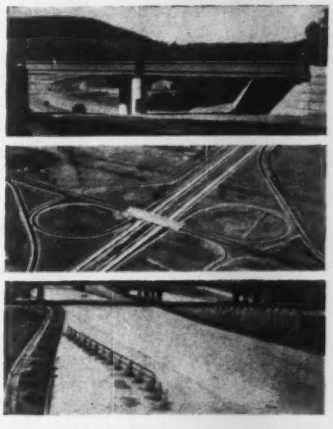
As Congress starts probe of road program . . .

. . . BPR issues new standards that . . .

- **change bridge clearances**
- **change interchange spacing**
- **change lane requirements**



New Standards — Same Price Tag?

Congressional investigators of the national highway program went to work this week with dollar signs in their eyes.

But as they peer into the $39.5-billion program for wasted millions, the best guess of those who should know is that the program might actually go for less—not more—than its 1958 price tag.

The special House committee investigating the program in Washington this week under Chairman John A. Blatnik (D., Minn.) heard Bureau of Public Roads and Defense Department testimony. The Defense Department testified because of its demand that nearly all new Interstate highway overpasses be raised from the original 14 ft to 16 ft (to make possible highway transport of missiles). This could add $200 million or so immediately to the cost of the system.

But the new overpass clearance was not the only new standard the investigators were to hear about. Other new standards went out to the states from BPR last week.

Still, the best bet is that when the required new estimate comes in to Congress in January, 1961, it won't vary much from the 1958 estimate. Fact is, BPR engineers expect a lower cost-per-mile estimate.

The 1958 estimate covered 38,548 miles; the 1961 report will take in an additional 1,102 miles allocated since then—a total of 39,650 miles.

While higher bridge clearances will add to total cost, other changes—in numbers of interchanges and lanes—could result in savings.

State-by-state estimates must be in BPR's hands August 1. The summation of these, to be submitted to Congress next January, will form the basis of apportionments of federal funds for four fiscal years, 1963 through 1966. The law calls for another reappraisal in January 1967.

Even if the hopeful prediction that estimated cost per mile will be less does not pan out, nobody foresees the 1961 estimate causing any sharp revision in the total estimated cost of the system. The 1958 estimate caused a drastic increase in an earlier total, but the older one was based on inadequate estimating and a somewhat lower total mileage. Over-all estimated cost zoomed upward to $39.5 billion from $27.6 billion used by Congress in 1954 and in the 1956 legislation. Experience has demonstrated the validity of state estimates incorporated in the 1958 report.

On the basis of some $2.5 billion of Interstate projects awarded to contract, costs have run close to 5% under the estimates made by the states for the same sections in their 1958 summations. This trend of actual costs—holding close to but below estimates—has proved so consistent that BPR officials have reason to hope it will continue.

Construction costs, representing well over 80% of total Interstate expenditures, should cause no increase this time over 1958. For the 1958 estimate, each state developed its construction prices on the basis of experience in the second half of 1956. In preparing the 1961 revised estimate, the states will use a twelve-month base period ending last June 30 for determining unit prices. And during the interval between the two base periods, BPR's composite price index for federal-aid contract awards declined a small amount, less than three-quarters of 1%. This would indicate that the weighty construction factor won't go higher in the new estimate.

The new standards issued last week for estimating the cost of completing the Interstate Highway System will impose a heavy load of work on the state highway departments and the Bureau of Public Roads. The new criteria set guide-line limits for important elements of Interstate design; they require re-analysis of contemplated projects that exceed the new limitations.

BPR issued the estimating instructions soon after receiving a delayed decision from the Defense Department on the vertical clearance it needs under overhead structures. From now on, all new overhead bridges—with minor exceptions—must have a vertical clearance of 16 ft.

Certainly a sizable number of new overhead bridges is involved. Plans included in the 1958 estimate called for some 40,000 structures on the system

(*Turn the page*)

. . . Congressional investigators probe Interstate highway program

More than 30,000 of them apparently would be either overpasses or underpasses for Interstate roadways.

BPR is now making a count to determine the number of overhead structures affected by the 16-ft decision and to estimate the increased cost. Many states already are building to clearances greater than the old 14-ft minimum, four of them to the full 16 ft now required. This fact helps to hold down somewhat the added cost.

Other stipulations written into the instruction manual may effect some reductions in the 1961 estimate. Design criteria call for application of limiting formulas to interchange spacing, number of traffic lanes and some other items. The limitations are balanced, however, by language permitting exceptions that can be justified to BPR's satisfaction. Over-all effect of the restrictions, measured against total cost of the system, is expected to be small.

Requirements for the spacing of interchanges are the most restrictive of the new limitations. The criteria specify that average distance between interchanges shall be not less than two miles in urban areas, four miles in suburban sections and eight miles in rural territory.

Further, the instructions stipulate that under normal circumstances the increased cost of developing an interchange should have a net benefit-cost ratio of 1.0 or more. A formula for figuring the benefit-cost ratio has been in use for years, BPR says.

Thousands of interchanges will come up for justification under the new criteria. Interstate planning in the 1958 estimate called for 12,500 interchanges, an over-all average of one every three-plus miles for the entire system. The planned interchange locations satisfied the criteria of the 1958 construction manual, which specified only minimum distances between interchanges, not less than one mile in urban areas and not less than three miles in rural areas. These minimums are repeated in the manual just issued.

"Suburban" is a new term, used for the first time in the 1961 manual. Its meaning has not been defined, but BPR officials don't foresee difficulty in applying it. Federal and state highway people have agreed on delineation of urban areas, and BPR thinks a separate designation is needed for built-up, but less densely populated, suburbs.

Restrictions on traffic lanes in the new criteria attempt to limit the number of lanes in two respects. Within cities, the permissible number of traffic lanes would be determined by the estimated 1960 population: no more than four lanes for cities under 400,000; no more than six lanes for cities of 400,000 to 1 million; and no more than eight lanes for cities exceeding 1 million.

Allowance of construction cost for building extra lanes is subject in general to a broader control. Under this requirement, a state has to get BPR concurrence before it can list money to build, say, a third lane on a two-lane roadway that would need more than two but less than 2.5-lane capacity to handle 1975 traffic.

Tying lane limitations inside cities to 1960 population estimates, rather than to 1975 projections, has definite advantages, BPR believes.

But cities that expect big population increases in the next 15 years don't agree. Many exceptions will come up for justification and approval under the new rule. Each one is to be tested against alternative methods of handling 1975 traffic, as spelled out in the manual.

Design items in the doubtful class this year are not ruled out of future consideration. The instructions say that when the state and BPR doubt the necessity for including, say, an interchange ramp, the cost of the ramp is to be omitted from the 1961 estimate. But the cost may be added into later estimates, when and if need for the item becomes evident.

Other design features are closely controlled under the new estimating rules. Frontage roads paralleling the main artery have to be validated on economic grounds.

Grade separation structures, too,

. . . Rep. Blatnik: He Asks

Chairman John A. Blatnik sees a four-year job, at least, for his House public works special subcommittee that began this week to investigate the $39.5-billion system of Interstate highways.

The chairman of the investigators was one of the seven principal architects in the House of the act that led to the program—the biggest public works program ever undertaken by any nation.

John Blatnik, who will be 49 next August, is a 6-ft 2-in., 190-lb dynamo of a legislator. He is one of the remarkable breed of new politicians—young, extroverted, aggressive, well-educated, ultra-liberal—spawned by the political mating in the early 1940s of the Democratic and Farmer-Labor parties in Minnesota.

In 1946, back from the war where he was an air intelligence officer, young Captain Blatnik won the combined Democratic and Farmer-Labor endorsements for Congress from Minnesota's northern-most district, the eighth. Surviving Communist charges in the heated campaign—charges stemming from his 18 months of wartime service as U.S. liaison officer with Tito in Yugoslavia—Mr. Blatnik pulled off one of the real upsets of the political year. Beating a Republican incumbent, William Pittenger.

Congressman Blatnik went to Congress in January, 1947. He asked for, and got, an assignment on the Public Works Committee.

Today he is the committee's fourth ranking Democrat, chairman of its subcommittee on rivers and harbors, number two man on the roads subcommittee, and a member of the subcommittee on buildings and grounds.

John A. Blatnik

Congressman Blatnik has been among the chief strategists in successful House fights for such major projects as the St. Lawrence Seaway, the accompanying channel deepening inland as far as Duluth and Superior, and the Niagara hydro works. His biggest individual mark, however, is as author of the first effective federal water pollution control law. Today, John Blatnik proudly calls the program "the most successful of all the federal grant programs."

The construction of sewage and other pollution abatement projects, which had averaged $220 million a year for the five years prior to his bill, now approaches $400 million. He says the figure should be even higher—around $600 million.

In the highway inquiry, which will bring Minnesota's Blatnik much more public attention than he has had be-

changes and costs

must be re-evaluated by the state highway departments and agreed to by BPR's division engineer in each state before they can be included.

Similar limiting criteria are newly prescribed or re-affirmed in the instruction manual to control inclusion of costs for crossroads, safety rest areas, fencing, lighting, signing, and the like.

No facilities are to be provided for local buses or for school buses, either, except in special circumstances. But, Interstate highways may be designed to handle through bus traffic.

Further, the instructions call for application of minimum standards to the highway cross section, exclusive of right-of-way and mediam widths, if estimated 1975 traffic for the route is appreciably less than the design capacity.

the Questions

fore, the subcommittee will eventually get into all strata of the vast activity—federal, state and county highway departments, industrial suppliers of the highway industry, private contractor operations, and labor.

John Blatnik says: "With all that money—90% of it federal, mind you—the odds guarantee that there will be a certain amount of outright collusion, fraud and dishonesty." He says he has no question about the integrity and honesty of the "overwhelming majority" of persons in or servicing the program, and he is determined to "try to keep the subcommittee's work in proper perspective—that is, not to portray this thing as one big racket." He goes on, "What we really want to do is keep Congress informed and to maintain and sustain public confidence, while at the same time upholding the integrity of the program."

His group will not be directly concerned with financing the Interstate system—they'll stick mostly to its administration. But highway finance is a subject on which Mr. Blatnik has some strong ideas.

He thinks the stretchout in work schedules is deplorable; that Sen. Harry F. Byrd's pay-as-you-build amendment was a blunder; that some highway-user excises now going into general revenue should be diverted to the Interstate Trust Fund; that the Defense Department budget should include a contribution for the Trust Fund; and that certain industries benefiting directly from either defense or highway building —concrete and steel, to mention two of his examples—might be tapped also, via an excess profits tax, in behalf of the Trust Fund.

John Day Site Is in the Dry

Pumps are drying up the north shore enclosure at John Day Dam site as work gets under way on construction of the north abutment, 19 of the 20 spillway bays and the 113-ft-lift navigation lock.

The $32.4-million north shore contract also includes a nonoverflow section and fish ladder. It is expected to be completed in August of 1962. Concrete work will start this spring when a batch plant goes into operation.

A south shore contract, not yet awarded, will involve the powerhouse, one spillway bay, a fish ladder, nonoverflow sections and south abutment.

John Day is on the Columbia River, downstream from Arlington, Ore. It will impound 2.5 million acre-ft of water. Over-all cost of the project will be $418 million. Corps of Engineers' award for the north shore work was to Montag, Halvorson, McLaughlin and Associates.

Politics Traps School-Aid Bill

A school construction bill—passed by the Senate and loaded with politics —is the subject of hurried conferences and legislative maneuvering in the House this week.

Sources closest to the skirmishing view it is more than likely that a bill—substantially watered down from the generous Senate version—will pass Congress and go to the President. But whether it is vetoed may depend on how much influence Vice President Nixon can bring to bear.

The Vice President is on the spot because he broke a tie by voting against aid for teachers' salaries. If Congress sends up a modest bill to aid school construction and the President vetoes it, Democrats will pillory Mr. Nixon in the coming presidential campaign.

The Senate, voting down President Eisenhower's own modest construction bill by a vote of 61-25, whipped through a big Democratic bill.

It would provide $917 million each year for two years in grants to the states to use as they saw fit for either construction or teachers' salaries.

Poor states would get more than wealthy ones: Mississippi, for instance, would get $23 of federal money for each dollar put up by the state while New York would get $2 for $1. (The average state would get $4 for $1.)

A state, if it chose to, could devote all its grant to construction.

House Democrats know they can not get such a whopping bill approved. A bill of comparable size has been tied up in the House Rules Committee for months, and slow-moving Chairman Howard Smith (D., Va.) is not about to let it through.

Democrats, with a good majority on the House Education Committee, will try to pare the Senate bill down to about $325 million a year.

They would also limit it strictly to school construction, since Speaker Sam Rayburn is against supporting teachers' salaries. The House would retain the "needs" test and perhaps try to insist that states set up their own system of needs priority.

GOP House Leader Charles Halleck (Ind.) will play a key role. The President has said he would veto any bill but his own, which is already a dead duck. But Rep. Halleck would like to be Mr. Nixon's running mate. Mr. Nixon may want to get a modest bill through in hopes the President will approve it and kill the campaign issue. Or he may hope the House kills the bill and takes the blame. The GOP's marginal votes, added to those of economy-minded Democrats, can make the difference either way.

Mass Transit for LA? Can Do

A satisfactory mass rapid transit program is possible for Los Angeles, according to a progress report on a study of a system for the city.

The report recommends serious consideration of three kinds of rapid transit systems, rules out construction of a subway network, and sets up certain minimum requirements.

I. F. Mendenhall, of Daniel, Mann, Johnson & Mendenhall, the Los Angeles architect-engineering firm (see p. 53) submitted the report to the Los Angeles Metropolitan Transit Authority after the first 90 days of study.

DMJM screened proposals for 45 different kinds of rapid transit system and endorsed three in the report:

- A conventional two-rail system that would use lightweight equipment.
- A system operating on a symmetrical split rail and having the appearance of a suspended monorail.
- A monorail system using the overriding or saddlebag configuration.

The report also recommended further study of a new concept in rapid transit, a "ground effect vehicle" that uses air suspension and magnetic propulsion.

The possibilities of operation in freeway or railroad right-of-way were considered in the report. A subway system was ruled out because geologic conditions in the Los Angeles area make underground construction three times as costly as overhead work.

The DMJM study of the role of rapid transit in an over-all transportation plan developed three broad rapid transit system concepts:

- Full coverage systems that would carry a majority of passengers where they want to go in the community with rapid transit service.
- Flexible systems that would use buses to provide feeder distribution and truck service with a single vehicle.
- Trunk line rapid transit systems served by feeder and distribution systems using buses or other equipment.

The study has been directed so far toward the trunk line concept.

The A-E firm will study the three transit concepts to find out how many passengers they would have to carry now and in the future. When a basic concept is established, the company will be able to recommend a master plan for ultimate transit service.

DMJM made a special study of route alignments in the four transit corridors that carry the bulk of the city's transportation load. By the time the study is complete they will have decided upon the best possible routes to serve each of the four corridors.

Criteria for the System

Speed . . .
Maximum of 75 to 80 miles per hour; average scheduled for 45 miles per hour; acceleration rate—3.0 to 3.7 miles per hour, per second; deceleration rate—4.5 miles per hour, per second.

Capacity . . .
Capable of providing 30,000 seats per lane, per hour capable of 90 second headways; maximum station stop—20 seconds; operate on grade-separated rights-of-way.

Convenience . . .
Careful design of interchange stations for ease in transfer; escalators from lower to higher levels; parking areas adjacent to outer limit stations; convenient service to the central business district; integration with buses.

Comfort . . .
Adequate seat dimensions; internal temperature control; low noise levels; pleasing appearance; smooth riding qualities; provide seats for majority of passengers.

Safety . . .
Automatic train control with fail-safe features; easy evacuation.

Appearance . . .
Stations and way structures must be pleasing in appearance; trains must be ultra-modern in exterior and interior design.

Maintenance and Operation . . .
Lightweight equipment; interchangeability of equipment between lines; line connections to central maintenance area; no more or less than one operator per train; collection of fares must be practical and convenient; power and propulsion system must produce minimum of noise and smog.

The next phase of the study will be the analysis and selection of the transit system and equipment best suited to Los Angeles' needs, selection of a specific route within each of the four corridors and in the central business district, and development of cost information.

Vote Total Water Project Cost?

There's a strong move afoot, mainly in the Administration, to urge Congress to appropriate all the money needed for each federal project in a lump sum instead of in piecemeal annual amount throughout the construction period (ENR Feb. 4, p. 19).

The proposal came alive last month. At the Budget Bureau's suggestion, the White House came close to asking Congress to appropriate in fiscal 1961 the entire construction cost of the 67 new starts requested by the President. But the idea was dropped in deference to the political hazards of an election year.

Most federal contracts except civil works are based on a one-year appropriation. But most of these projects are completed or nearly completed in a single year.

Flood control, rivers and harbors and reclamation jobs run about five years.

The plan has strong support and opposition. Some would be supporters, however, doubt that it could work.

Lt. Gen. Emerson C. Itschner, the Army's Chief of Engineers, praised the lump-sum method last November in a speech before the Mississippi Valley Flood Control Association, and he plans to promote it further in testimony before the House Appropriations Committee this month. The Bureau of Reclamation also supports the plan.

General Itschner and other advocates think lump-sum appropriations would cut construction costs by increasing efficiency and speeding completion.

The proposal raises hopes in some, fear in others, that a huge first-year appropriation on new project starts would cause a major reaction against all federal projects. Opponents to federal civil works in general could advocate one-shot appropriations to rouse such a reaction.

$83-Million Expressway Approved for Manhattan

Plans for an $83-million Lower Manhattan Expressway that would link the Holland Tunnel with the Williamsburg and Manhattan bridges were approved last week by the New York City Planning Commission and sent to the Board of Estimate for endorsement.

The Planning Commission says the elevated road is needed to relieve traffic congestion that is "slowly but surely strangling the economic life of lower Manhattan."

According to City Construction Coordinator Robert Moses, it will take two years to clear the area for construction. If the Board of Estimate approves the proposal by spring, the project can be finished by 1966.

More than 2,200 families live in the path of the planned crosstown expressway, most of them in substandard buildings. The city's Real Estate Department will add 40 members to its staff to handle the relocation. Almost 900 commercial establishments will also fall in the path of the expressway.

The construction cost is estimated at $47 million and the right-of-way acquisition at $36 million.

The 2.5-mile route will cost New York City nothing. As part of the Interstate System of National and Defense Highways, the federal government will pay 90% of its cost and New York State will pay 10%.

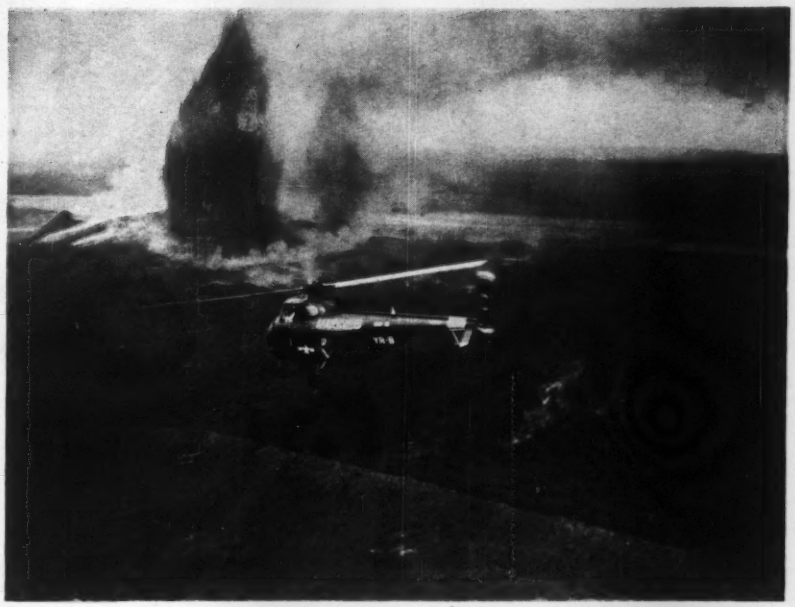
South Dakota, New Mexico To Get Desalting Plants

The U. S. Interior Department will build brackish water purification plants in Webster, S. D., and Roswell, N. M., Secretary Seaton said last week.

Selection of the two sites leaves location and process undecided for only one of the five desalting plants authorized under the government's $10-million demonstration plant program.

Each of the two plants figuring in last week's announcement will produce 250,000 gal of fresh water daily. The Webster plant will incorporate the electrodialysis process. The Roswell plant will have a forced-circulation, vapor-compression distillation system.

Still to be announced are the process and location for a seawater plant on the Atlantic Coast. The Interior Department settled last year on Freeport, Tex., and Southern California as the locations of the authorized Gulf and Pacific Coast plants. Each will produce 1 mgd. The Freeport plant will have the Badger multiple-effect, long-tube, vertical distillation system. The California plant will incorporate multistage flash evaporation.



Earth dike, foreground, did not stop Kilauea's fiery lava so . . .

Hawaii Ponders Lava Defense

Volcanic eruptions on the Island of Hawaii have started island engineers looking into whether or not ordinary flood-control measures can be applied to molten lava.

Lava from Kilauea volcano overflowed and breached the earth dike hastily erected in a vain attempt to save the village of Kapoho.

Gordon A. Macdonald, University of Hawaii volcanologist, stressed that the effort failed because they tried to stop the flow rather than divert it.

Mr. Macdonald maintains that damming a lava flow is impractical considering the unpredictable volume. He feels that a volcanic "flood" should be dealt with in the same manner as rampaging rivers—by diverting the flow around the city or structure to be protected.

Corps of Engineers is studying the professor's proposal to build an earth diversion dike around the city of Hilo (pop. 25,000) to guard against flows from the giant Mauna Loa volcano. Hilo, situated at the foot of this temperamental cone, has been threatened three times in the last 100 years.

Steel Girders Collapse on Job

Forty workmen escaped with only minor injuries when nine steel girders collapsed during erection of the Hehr Manufacturing Co. building in Los Angeles. Damage is tentatively estimated at from $10,000 to $50,000.

The girders framed the roof of a one-story factory area, part of a $200,000 office and factory building addition. The two-story office section was unaffected by the collapse.

Girders were shop-welded I-sections, made up of plates and tapered in profile. Spaced at 20 ft c-c, they spanned 96 ft across the factory wing. Total weight of the nine girders was 28 tons.

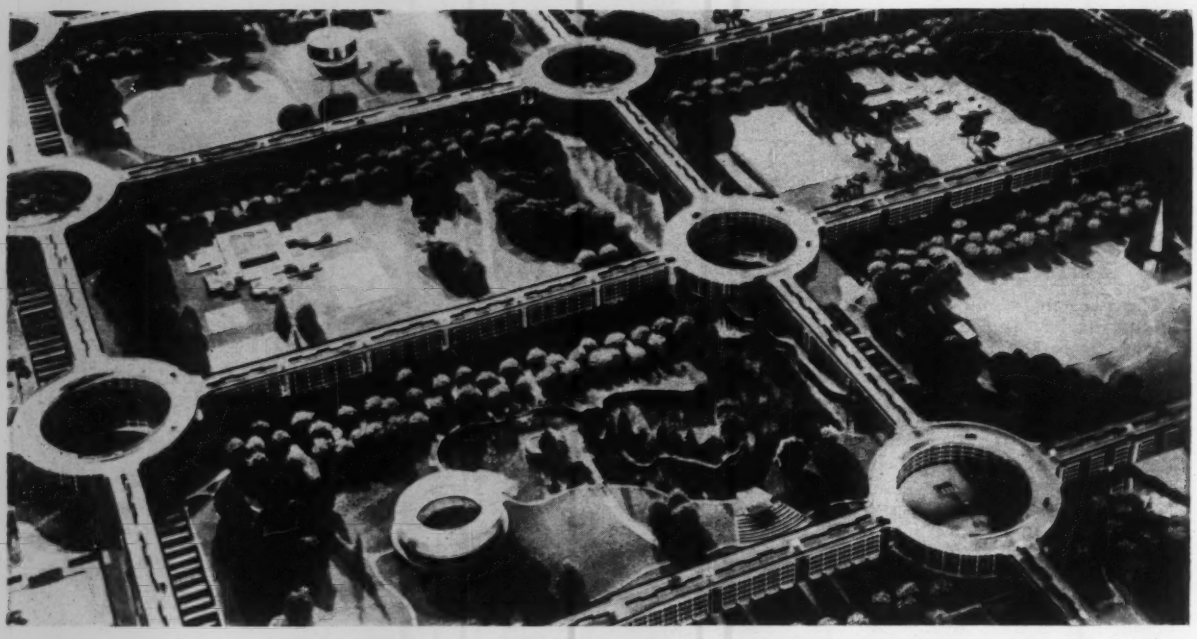
Exterior wall columns, timber sections 10 x 10 in., supported the girders 20 ft above the ground floor. Seated at column tops, the girders were connected to clip angles. There were no knee-braces specified.

The girders buckled and came down as ironworkers tightened bolts on the column cap connections. Several workers had to jump, while others scrambled to safety.

Structural engineer Lawrence Breinin attributes the collapse to the failure of a welded joint connecting rod bracing to the column clip angles. The rod bracing tied the girders together.

The fact that roof purlins were not in place to provide stability was a contributing factor, according to Mr. Breinin.

Rudy Hehr of Los Angeles is owner-builder. Ross Carter of North Hollywood is structural steel contractor. Santochi and Breinin, Los Angeles architects and engineers, were structural engineers. Investigator for the Los Angeles Department of Building and Safety is Walter Brugger.



Tomorrow's City: British Version . . .

. . . and the American Version

Traffic problems plaguing cities on both sides of the Atlantic have inspired British and American planners to design cities of the future.

Motopia, the British version, features roads at rooftop level. Structures roofed by the roads would contain dwelling units and shops. Other facilities—schools, churches, municipal buildings, etc.—would occupy the rectangular park areas formed by the intersecting streets.

British architects are considering a site 17 miles west of London for their automobile-oriented community of 30,000. But plans have not gone beyond the drawing boards.

Planning for America's Horizon City, a more ambitious if less radical undertaking, has gone beyond that for Britain's Motopia. First stage in construction of this futuristic metropolis three miles outside El Paso is scheduled for next summer. Promoters hope that residential building in the future city's suburbs will stimulate $1 billion worth of commercial and industrial development within the next five years.

Foreseeing an eventual population of 1.5 million, the developers are planning Horizon City on a grand scale. It will feature:

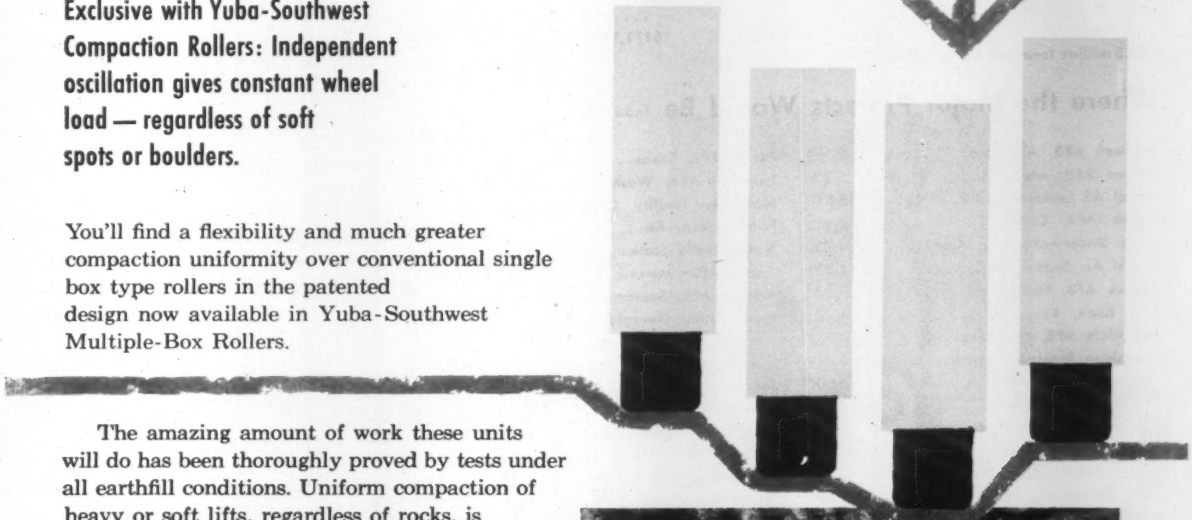
- An oval-shaped center plot containing a 350-acre park with artificial lake and two heliports (see picture).
- Three-lane expressways running east and west through the city.
- Pedestrian tunnels under 500-ft-wide main thoroughfares.

Chief designer is Lucio Costa, the Brazilian architect who designed the master urban plan of Brasilia (ENR Apr. 9, 1959, p. 32). Joseph Timan, realtor from Tucson, Ariz., is president of Horizon Land Corp., developers.

UNIFORM COMPACTION WAY DOWN DEEP

Exclusive with Yuba-Southwest Compaction Rollers: Independent oscillation gives constant wheel load — regardless of soft spots or boulders.

You'll find a flexibility and much greater compaction uniformity over conventional single box type rollers in the patented design now available in Yuba-Southwest Multiple-Box Rollers.



The amazing amount of work these units will do has been thoroughly proved by tests under all earthfill conditions. Uniform compaction of heavy or soft lifts, regardless of rocks, is accomplished with fewer passes and with greater efficiency than by any other tamping method. A major design feature is in the individual weight boxes and wheels: each assembly is mounted independently for full vertical oscillation, providing a constant wheel load no matter what the terrain. Bridging or load shifting is eliminated, and the Yuba-Southwest Multiple-Box Roller rides slopes smoothly with greatest possible stability.

You get up to three times as much tire life, too, over single box type rollers with their limited oscillation. Costly overwear and frequent blowouts are a thing of the past.

Why not get full information on this outstanding, money-saving equipment today. Choose from five models: 10 to 100 tons rated capacity. Adaptable to any job. Assembled in any combination of 3 to 6 boxes with flanged yoke.

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Military Construction Authorization Sought (add 000)

	U. S. Locations	Overseas	Total*
Army	$100,930	$ 39,976	$ 158,406
Navy	94,466	25,885	137,851
Air Force	553,141	105,155	675,796
Army National Guard	12,035	133	12,168
Army Reserve	11,674	.....	11,674
Naval & Marine Corps Reserves	6,450	.....	6,450
Air National Guard	7,226	.....	7,226
Air Force Reserve	4,590	.....	4,590
Dept. of Defense	.....	.....	20,000
Totals	$790,512	$171,149	$1,034,161*

**52.5-million locations not specified*

Where the Major Projects Would Be (add 000)

Maxwell AFB, Alabama	$ 5,188	Perrin AFB, Texas	5,040
Eielson AFB, Alaska	5,309	Fairchild AFB, Wash.	5,951
Naval AS Lemoore, Calif.	10,818	Naval Air Facility, Okinawa	5,943
March AFB, Calif.	7,468	Fort Rucker, Ala.	3,518
Navy Underwater Lab., Conn.	4,432	Naval Radio Station, Calif.	2,474
Naval Air Station, D.C.	14,911	Castle AFB, Merced, Calif.	2,800
Patrick AFB, Florida	5,363	Mather AFB, Sacramento, Calif.	2,709
Fort Knox, Ky.	6,872	Turner AFB, Georgia	2,464
Barksdale AFB, Louisiana	7,265	Naval Auxiliary Air Sta., Miss.	2,766
Aberdeen Proving Ground, Md.	5,419	Keesler AFB, Miss.	2,499
Naval Academy, Md.	6,000	Jackson Municipal Airport, Miss.	2,689
Kincheloe AFB, Mich.	4,548	Aeronautical Center, Mo.	3,200
Fort Leonard Wood, Mo.	9,087	Offutt AFB, Nebraska	3,458
Glasgow AFB, Mont.	4,419	Kirtland AFB, N.M.	3,596
Naval Shipyard, N.H.	6,829	Stockbridge Test Annex, N.Y.	2,653
Fort Monmouth, N.J.	9,603	Grand Forks AFB, N.D.	3,075
Minot AFB, N.D.	4,180	Heath Maintenance Annex, Ohio	3,902
Fort Sill, Okla.	4,955	Lackland AFB, San Antonio, Tex.	3,022
Arnold Eng. Dev. Center, Tenn.	10,500	Camp Buckner, Okinawa	2,946

$1 Billion Asked for Military

Military construction projects costing more than $1 billion would become eligible for contract awards under an authorization request that went to Congress last week. The projects are scheduled for starting in the fiscal year that begins July 1.

Money to pay for the projects will come from an appropriation that will follow the authorization measure through Congress. The President's budget included a money request of $1.19 billion for military construction, nearly $160 million higher than the authorization bill submitted last week by the Defense Department.

Military construction is trending downward to a spending plateau that will level off above $1 billion a year as building of missile bases increases. Last week's authorization request for fiscal 1961 asked $190 million less than Congress approved last year.

New construction proposed in the current bill includes projects at 386 named installations located in 50 states and the District of Columbia. The request also asks authorization of new starts in Canada, the Caribbean area, Europe, the Pacific islands, Bermuda, Japan and Korea.

In addition, the bill requests congressional authorization for construction of 8,718 units of Capehart family housing at bases in the U.S. and its possessions, plus 1,068 units in this country and overseas to be financed in other ways. The Capehart program is slowing down. Congress authorized 20,000 Capehart units last year.

As overseas construction tapers off, a larger share of the military construction budget is spent in the U. S. About 80% of the requested $1-billion authorization is for U. S. projects.

Projects of the military services, as distinct from the reserve forces, account for more than $970 million. Of this amount, a heavy share would go into construction related to missiles. On a spending basis, half of the military construction expenditures scheduled for fiscal 1961 are budgeted for missile construction.

Bituminous Research

$1.3 million to be spent on product improvement

Bituminous concrete producers will spend $1.3 million to improve their product through research during the next five years.

Each member company of the National Bituminous Concrete Association will be assessed one-half cent per ton of bituminous concrete produced during that period to finance the pay-as-you-go program. The assessments will go into a special trust fund. The research program, launched last year, is dedicated to "quality improvement" of bituminous pavement. Charles R. Foster, coordinator of research for NBCA, is in charge. Mr. Foster outlined the details to NBCA's fifth annual convention in Detroit last week.

Based on anticipated bituminous concrete production, about $125,000 will be spent on the program this year, Mr. Foster said. That figure will be nearly doubled during the next two years and increased to about $350,000 for each of the two following years.

Early work will include a survey of current literature on improved practices, as an aid to both the producers of bituminous concrete and contractors constructing highway and airfield pavements of the material. Another high priority project will be the preparation of a design manual for heavy-duty bituminous pavements. The objective of this project is to translate results of several million dollars of research done by the Corps of Engineers on heavy-duty airfield pavements into form suitable for application to highways.

Other objectives of the research program include improvement of asphalt cement; smoother riding pavements; improved quality through better control of aggregate selection and handling; more economical pavements through better design; more efficient equipment.

The characteristics of asphalt cement will be studied from the standpoint of slower loss of life in the mixing cycle; more resistance to fatigue cracking; and better resistance to displacement of the asphalt cement from aggregates by water.

Several research projects are already under way, sponsored by state chapter affiliates of NBCA. They include research on drying aggregates, effects of moisture content, hardening of asphalt binder in hot-mix pavements, rubber-tired compaction, and pavement performance on Oklahoma's Turner Turnpike.

Bryant M. Collins, president, Collins Construction Co., Austin, Tex., is the new NBCA president.

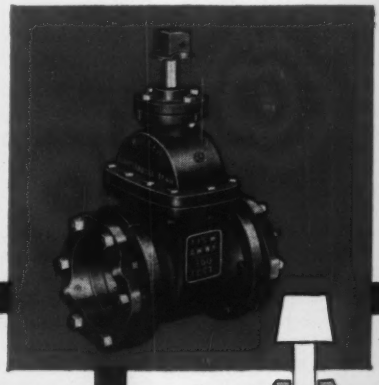
the reason more and more water systems standardize on **MUELLER®** *gate valves:*

TIGHTER SHUT-OFFS TROUBLE-FREE OPERATION MINIMUM MAINTENANCE

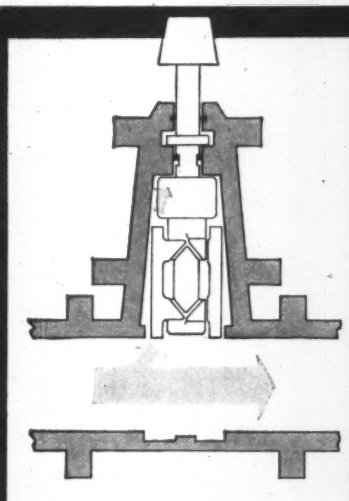
... These are just a few of the benefits you get from installing Mueller double-disc, parallel-seat valves with exclusive "4-Point" wedging mechanism design.

The drawings below illustrate the principle. Torque applied to the valve stem is resolved into a vertical wedging force by the upper and lower wedge nuts. Side-spreaders transfer this force into a horizontal action and apply the force at four points on each gate disc.

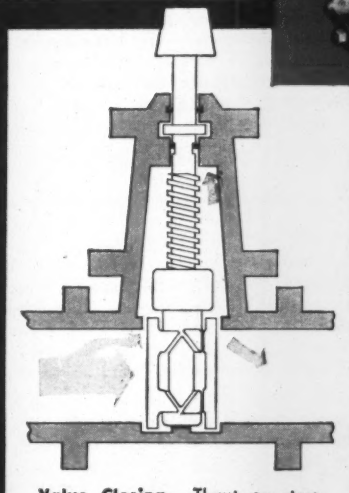
Uniform seating loads are developed, eliminating disc distortion and deflection. Tighter, positive shut-offs are assured.



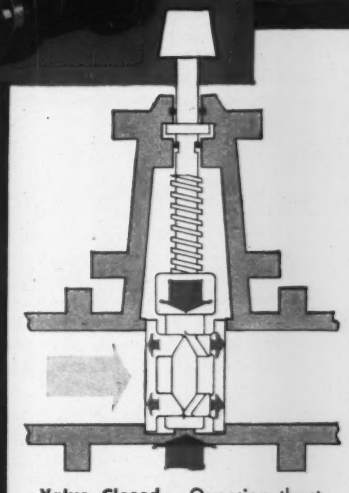
Here's how the "4-Point" mechanism works.



Valve Open — Discs supported by flange (not shown) on stem wedge nut. (Note how water pressure in bonnet is tightly sealed by "O" ring seal.)



Valve Closing — Thrust on stem has forced stem up (note position of thrust collar.) Discs, in contracted position, do not scrape against seat rings when lowered. Lower wedge nut has contacted stop in body.



Valve Closed — Opposing thrust of wedge nuts is divided by side spreaders into four equal seating forces. These forces, evenly distributed to both discs, seat the discs tightly against the body seats. (Note how wedge nut is free to rotate slightly to prevent strain on stem as assembly expands).

Other bonus features — "O" ring stem seals *above and below* thrust collar... life-time lubricant completely surrounding thrust collar and sealed in by "O" rings... high tensile bronze stems with strong, electrically upset-forged thrust collar... sizes over 18" have extremely high-strength, cast manganese-bronze stems... complete line of end connections... full range of sizes.

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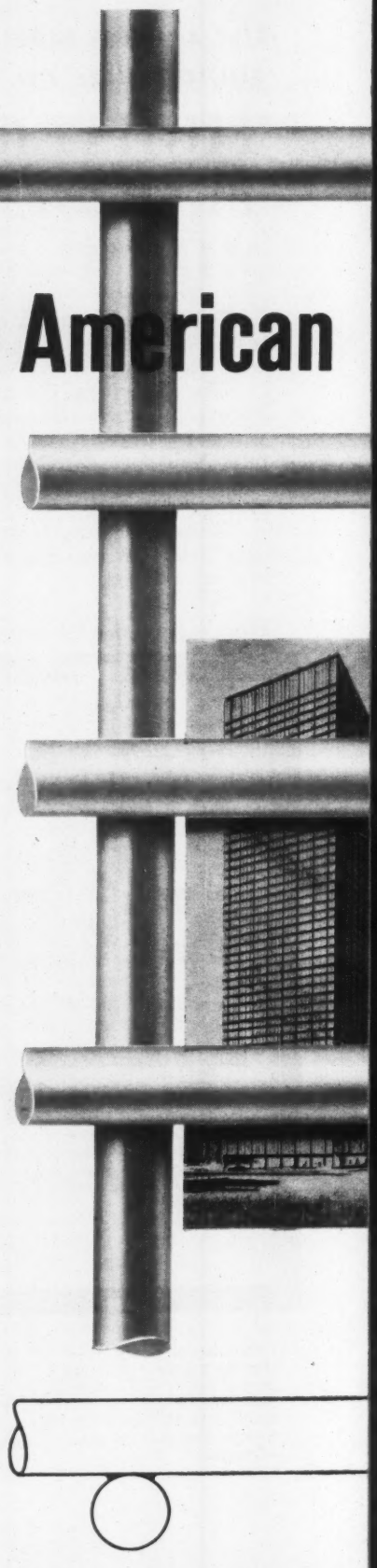

Welded Wire Fabric is now available with ½" diameter wires spaced as close as 2" on centers in both directions! These new areas of steel, plus the many time-tested advantages of Welded Wire Fabric, make it the ideal structural reinforcement for all types of construction—one-way slabs, two-way flat plates or flat slabs, walls, slabs on grade, etc.

Consider these advantages:

1. American Welded Wire Fabric is produced from cold-drawn high tensile steel wire. This wire is carefully produced to conform to the requirements of ASTM Specification A82-58T. The minimum tensile strength is 75,000 psi and the minimum yield point, as defined in this specification, is 80% of the tensile or 60,000 psi. Actually, cold-drawn steel wire has no yield point in the conventional sense—no sudden excessive elongation. This means that cold-drawn wire tends to resist stress practically throughout its entire strength range without revealing any sudden elongation such as develops in a typical hot-rolled bar. This physical advantage of cold-drawn wire makes it the ideal concrete reinforcement.

2. American Welded Wire Fabric is completely machine prefabricated by electrically welding all wire intersections. The strength of these welds conforms to ASTM Specification A185-58T which requires that the minimum average shear value of the weld in pounds shall not be less than 35,000 multiplied by the area of the longitudinal wire. This high-strength connection assures positive "mechanical anchorage" in the concrete. In fact, laboratory tests reported in the ACI Proceedings, Vol. 48, April, 1952, show that this anchorage is so good that fantastically high bond stress values from 1000 psi to 2700 psi are computed using conventional bond stress theory!

3. American Welded Wire Fabric is prefabricated with greater accuracy than can normally be relied upon in field work. The wires may not vary more than ¼" center-to-center than the specified spacing. This assures correct placement and distribution of the steel. Also, the wires are drawn to the very close tolerance of 0.003".

4. American Welded Wire Fabric requires very little on-the-job tying. Large prefabricated sheets are shipped to the job and placed as a unit. This eliminates thousands of ties and results in important labor savings.

The representatives of American Steel & Wire will be pleased to discuss with you the many advantages and applications of Welded Wire Fabric. Just contact American Steel & Wire, Dept. 0116, 614 Superior Ave., N.W., Cleveland 13, Ohio. *USS and American are registered trademarks*

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United States Steel Export Company, Distributors Abroad

Welded Wire Fabric

Tunnelers Top Own Record

Before it could break into print with a new tunneling speed mark, a contractor group in Australia has outdone itself.

Utah Australia, Ltd., and Brown & Root Sudamericana, Ltd., who are building Tantangara Dam and Murrumbidgee-Eucumbene Tunnel for the Snowy Mountains hydroelectric and irrigation development, drove an 11-ft-dia bore an unprecedented 563 ft in a six-day week, then beat the mark the following week with a 590-ft advance.

The group claims, moreover, that the mark upset by the two-week burst of speed was its own—532 ft in six days last fall. Another Snowy Mountains tunneler claimed a record about the same time. Thiess Bros. Proprietary, Ltd., reported a six-day advance of 526 ft in the Tooma-Tumut Tunnel, a 12½-ft horseshoe (ENR Nov. 5, 1959, p. 23).

A 1955 record set in a bigger Snowy Mountains tunnel still stands. Kaiser-Walsh-Perini-Raymond, an American joint venture, drove a 24-ft heading 402 ft in six days.

Around the World . . .

• **Materials switch** – Communist China has announced a change from structural steel to concrete in its industrial building program. Added economies are obtained through use of pressure concreting, which consists of pumping grout into pebble aggregate previously placed in the forms. This method results in tremendous time saving and in moderate cost saving, according to the Reds.

• **Borrowing from Peter**—St. Paul, Minn., will borrow $8 million to lend to the state to speed up construction of two bridges for the city—one over the Mississippi River and one a viaduct to carry automobile traffic over railway tracks in the city. The state will use the money to get $8 million in federal aid under the 50-50 aid formula to build the bridges. Subsequently the state will use tax revenues to pay St. Paul.

• **Orders from the bridge**—U. S. Navy has approved the proposed $36-million bridge over the east passage of Narragansett Bay between Newport and Jamestown, R. I., subject to certain conditions. It must be 212 ft above mean high water (only 8 ft below Golden Gate Bridge clearance), piers must be at least 1,000 ft apart, and it must not interfere with Newport Naval Hospital.

• **Panama project**—The Panama Canal Co. will spend $21 million to increase the depth of the canal from its official depth of 42 ft to 47 ft. This is the final project in a $91-million program to raise the canal's daily capacity. The waterway's width will be increased from 300 ft to 500 ft.

• **Ten into four**—Massachusetts Gov. Foster Furcolo asked his state legislature to approve a proposal that would compress a 10-year, $1-billion highway construction program into four years. The 580 miles of highways would include Interstate routes, expressways and secondary roads. The plan calls for anticipation of federal highway aid over the next 10 years.

• **Chicago office building**—Construction has started on a $16-million, 24-story office building in the heart of downtown Chicago's Loop area. Architect is A. Epstein & Sons, Inc., Chicago. George A. Fuller Co., New York City, is general contractor.

• **Big steel tank**—The St. Louis County Water Co. has started construction on the second largest above-ground steel water tank in the country. It will hold 11 million gallons. The tank will be 240 ft. in dia. and 33 ft. high. The roof will be supported by 76 steel columns. The job will take about 1,120 tons of steel.

• **The road to Boston**—The final section of the Massachusetts Turnpike, a 12-mile stretch that will extend the 123-mile, cross-state expressway into Boston, will go under construction this year. The turnpike costs $239 million and the 12-mile section into Boston will cost $145 million.

• **Bridge tolls for tunnel**—The Senate Public Works Committee has approved a bill that would permit the use of tolls collected on the San Francisco-Oakland Bay Bridge for construction and operation of a rail transit tunnel under San Francisco Bay.

Teer Warns of Threat To Interstate Road System

Nello L. Teer, Jr., president of the American Road Builders Association, has taken to the stump to appeal for public support of the federal road program—a campaign ARBA launched at its meeting in Cincinnati last month (ENR Jan. 28, p. 42).

"We have all heard too much about its costs and not enough about its savings; too much about its over-all design, too much about its inconvenience and not enough about its benefits and its safety," Mr. Teer told a state highway conference in Raleigh, N. C., last week.

"The program is being criticized on every side, to such an extent that it may collapse completely unless there is a strong groundswell of genuine public support," said Mr. Teer, president of Nello L. Teer Co., Durham, N. C., construction company.

He told the conference that many states have had to cut back seriously their highway building under the federal-aid program because of the shortage of funds, but that the program is basically sound despite criticism.

Port Authority Schedules $136 Million Construction

The Port of New York Authority will spend $136.6 million, more than half of its budget, on construction of Interstate crossings and marine, air and land terminals this year.

The greatest single item in the budget will be the development of New York International Airport (Idlewild), for which the authority will spend $42 million.

Other high-priced projects will be the addition of a lower deck to the George Washington Bridge, $38.4 million; improvements and expansion at LaGuardia Airport, $19.4 million; and work on three Brooklyn-Port Authority piers, $11.3 million.

New Expressways Produce 77% Accident Rate Drop

The traffic accident rate on Michigan's new expressways is 77% lower than on the highways they replaced. Casualties on new routes dropped 76%.

The Michigan State Highway Department made before-and-after studies on 16 sections of expressways with a total length of 175 miles. The studies covered 12-month periods for both the old and the new highways.

On the old highways 20 persons were killed and 761 injured in 1,561 accidents during the year-long survey period. But only six persons died and 181 suffered injuries in 359 accidents on the new expressways.

ROBERTSON

TEXAS' newest bank boasts Q-AIR FLOOR

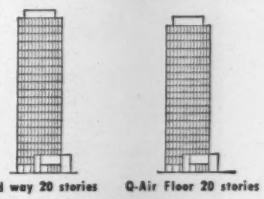
the modern floor system that saves you money three ways

It is now more than a quarter of a century since H. H. Robertson Company developed and introduced Q-Floor, the strong, weight-saving cellular steel subflooring system that provides quick, efficient construction and continuous raceways for all types of wiring. This type of floor system has become the standard for commercial buildings. *Now, something completely new and revolutionary has been added.* Q-AIR FLOOR not only carries telephone and power lines, but provides hot and cold air for air conditioning as well. Occasional pairs of extra-wide structural cells fit in with the normal Q-Floor system (with no change in the two-foot module) and carry the air to mixing units for discharge into the room.

This new system saves your capital and operating dollars in three distinct ways.

INITIAL CAPITAL INVESTMENT CUT 5%

Since Q-Air Floor permits an average saving of a foot of space between each floor, a twenty-story building can be built at the same height as a nineteen-story structure built by older methods resulting in a substantial savings in every building material that is installed from floor to floor.

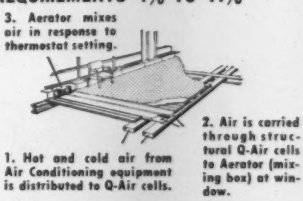


old way 20 stories Q-Air Floor 20 stories

An average of a foot per floor is saved by the Q-AIR FLOOR SYSTEM.

REDUCED BUILDING HEIGHTS CUTS BTU REQUIREMENTS 4% TO 11%

Heating and cooling are based primarily on exterior wall exposure. Therefore, a saving of 6" to 16" per floor can easily reduce BTU needs by 4% to 11%. This means lower capacity, lower cost equipment, effecting a saving on capital investment as well as in yearly operating cost.


3. Aerator mixes air in response to thermostat setting.
2. Air is carried through structural Q-Air cells to Aerator (mixing box) at window.
1. Hot and cold air from Air Conditioning equipment is distributed to Q-Air cells.

Cutaway above shows method of air distribution through large structural Q-Air cells. Smaller structural cells provide raceways for all types of wiring.

YEARLY POWER COSTS CUT 30%

The Robertson Aerator, a patented outlet box which mixes and delivers air into the room in response to local thermostat setting offers an exclusive feature, the **Seasonal Changeover** which can reduce power requirements up to 30%. Full blower power is used only for peak summer cooling. The rest of the year the system can operate at about 65% of power requirement. Older methods demand constant 100% volume of air the year 'round—and thus, constant power use.

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Pioneers in cellular steel sub-floor construction

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Mechanical Engineers	Yandell, Cowan & Love of Fort Worth
General Contractors	Childs-Bellows—*A Joint Venture* Childs Construction Company of Fort Worth W. S. Bellows Construction Corp. of Houston
Mechanical Contractor	Broyles & Broyles, Inc., of Fort Worth
Sheet Metal Subcontractor	Universal Sheet Metal Company of Fort Worth

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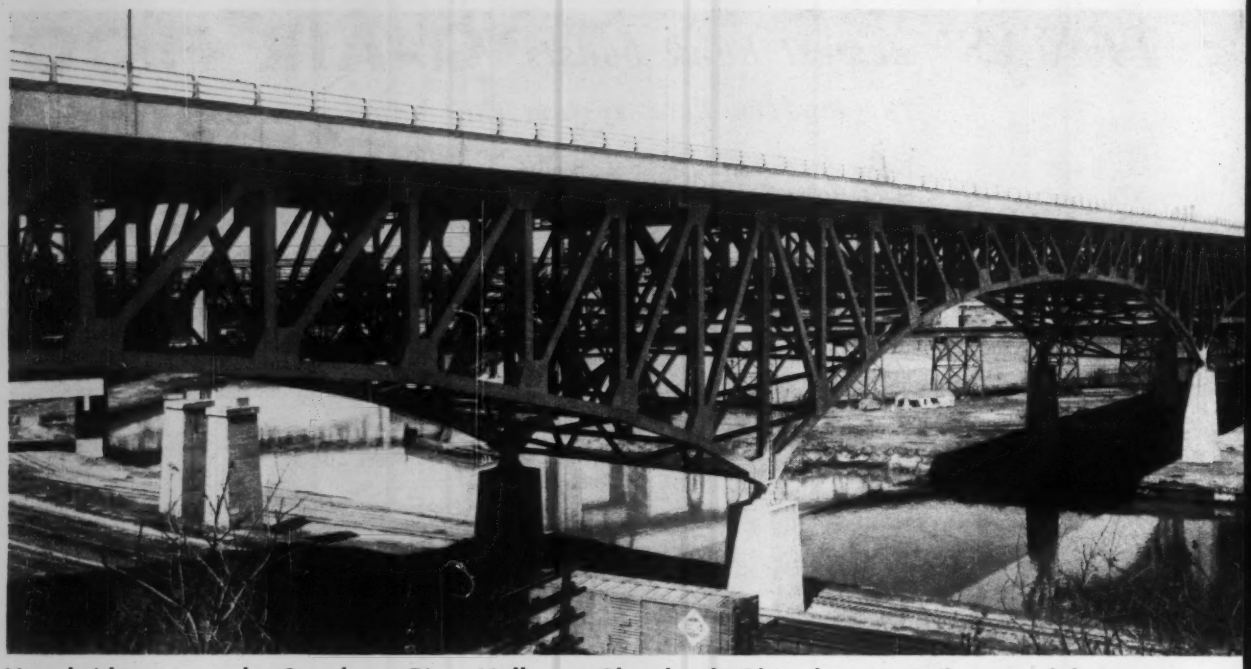


New bridge across the Cuyahoga River Valley at Cleveland, Ohio, has several unusual features,

Cantilever Deck Truss Bridge Has

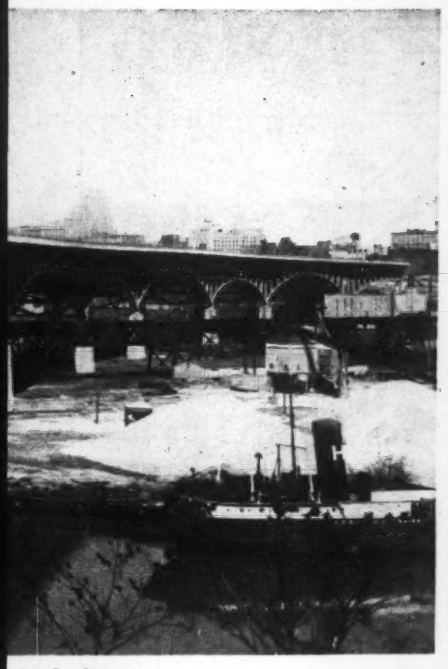
Wide, curved structure is built for eight lanes of traffic.

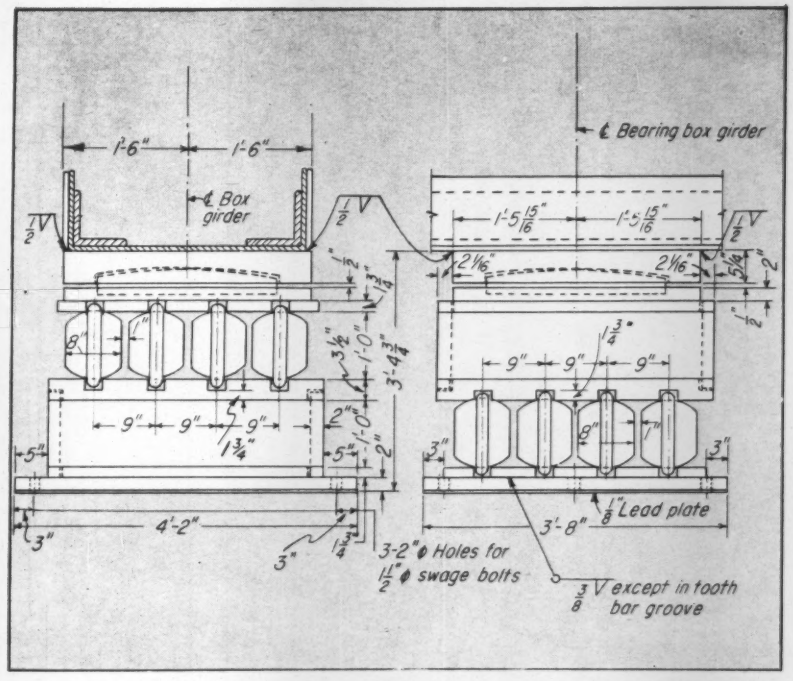
Bridge bearings that permit rotation in all directions are unusual. So are bearings that permit expansion in two directions. Yet a Cleveland, Ohio, highway bridge has a single set of bearings that do both.

This "universal joint" bearing arrangement, made necessary by roadway width, is but one of the features that make this structure noteworthy. Among the others are trusses set 90 ft apart, a pair of 111-ft-long transverse box girders and a linkage system that works in compression to permit one end of suspended spans to swing longitudinally as much as 6 in. under temperature changes.

The structure is the $18-million Cleveland Inner Belt Freeway Bridge. Built as part of the partially completed Inner Belt Freeway, the 116-ft-wide structure was opened late last summer to carry eight lanes of vehicular traffic across the Cuyahoga River Valley at the west side of the city. It spans the navigable Cuyahoga River, a dock area, two major highways, a railroad freight station and terminal yard, numerous tracks belonging to four separate railroads, a sand and gravel processing plant, and several other industrial installations. It is designed to carry a peak load of 95,000 vehicles per day.

In its 4,223-ft length, the structure has 1,502 ft of plate girder approach spans and a 2,721 ft main section of cantilever deck truss construction.





including . . .

. . . Bearings for two-way expansion, rotation in all directions.

Novel Bearings and Connections

The west approach of the bridge includes 371 ft of viaduct construction. Grades and vertical clearances were not critical. For economy reasons, relatively deep continuous deck plate girders with framed-in floor beams and stringers were used in the four spans of this section.

On the east approach, which contains 1,131 ft of viaduct construction, the conditions were far more difficult. Grades and vertical clearances were extremely critical and the spans had to be longer. At one point the surface of the roadway had to be less than 10 ft above the parapet of the flat roof of a one story freight house belonging to the Nickel Plate Railroad, and less than 26 ft above an adjacent road and three railroad tracks. To bridge the freight house, road and tracks, a span of 239 ft was needed for the main stem of the freeway and a span of 248 ft was required for one of two access ramps.

Because of the limited vertical clearance, multiple deck plate girders of high strength steel and of relatively shallow depth were used, instead of the girders with floor system as on the west approach, and the deck slab was placed directly on the girders. Even with this shallow girder construction, the bottoms of the girders clear the freight house by less than 1 ft.

An unusual joint detail on one of the access ramp structures resulted from the extreme variation in span lengths needed for this portion of the bridge. A 61 ft 5 in. span is flanked by spans of 151 ft and the freight house span of 236 ft. A transverse expansion joint was required near the departure of the ramp from the main stem of the freeway. This joint falls between the freight house and the 61-ft 5-in. adjacent span. In order to insure against uplift at the end of the short span, the long span is made up of two sections—a 15-ft-long cantilever from the short adjacent span and a suspended span of about 221 ft. As a result, the long, deep girder is supported by a short cantilever girder of a shallower depth.

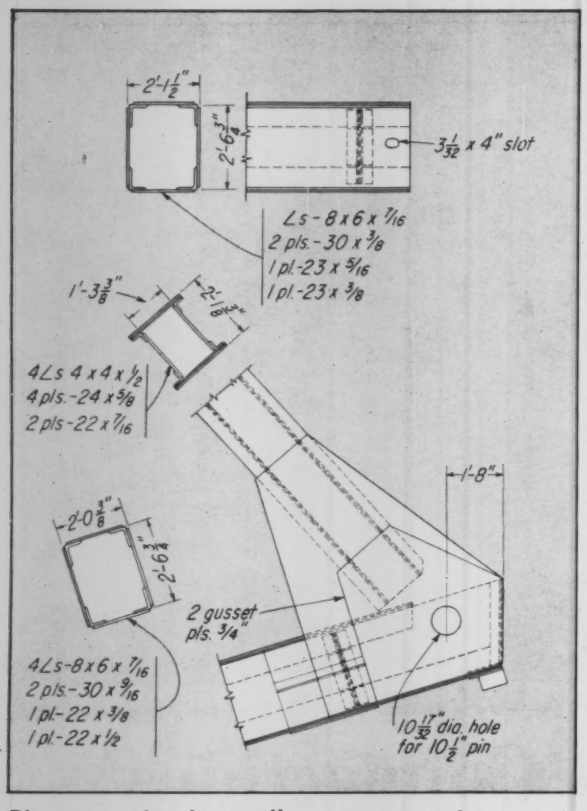
The central portion of the bridge is of balanced cantilever deck truss construction. The depth of the trusses at the piers effected appreciable savings in truss metal and in pier construction. However, due to the extreme width and length of the structure, the $8.13-million contract for superstructure erection was—and still is—the largest single construction contract ever awarded by the Ohio Department of Highways.

The truss structure consists of seven spans ranging in length from 226 ft to 400 ft. The two main trusses, varying in depth from 21 ft 6 in. in suspended sections to 68 ft at the piers, are set 90 ft apart. Spanning between the main trusses at 25-ft intervals are transverse trusses of the same depth as the main trusses, which function both as rigid floorbeams and sway frames. These stiff sway frames, together with the top and bottom lateral systems, minimize the differential deflections of the main trusses resulting from unsymmetrical live load on the wide roadway.

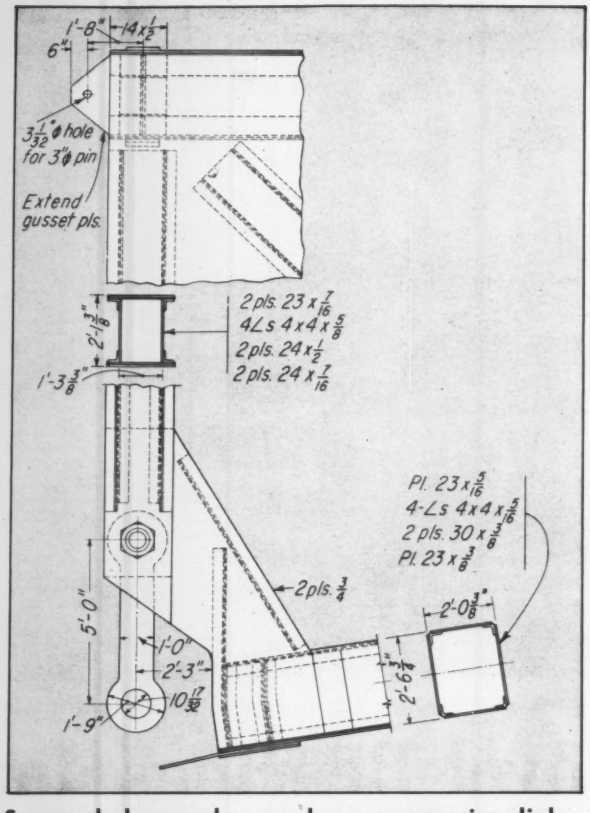
The longitudinal stringers that support the deck are continuous over the transverse trusses and provide for expansion at maximum of 125-ft intervals. The designers estimate that the use of continuous stringers rather than simply supported stringers saved about 100 lb per lineal ft of bridge.

The 1 deg. 30 min. curve in the truss span area presents some problems as to design live load. The bridge is designed for seven lanes of traffic reduced by 70%, in accordance with Ohio design specifications. The resulting load on each truss for tangent sections is 2.81 lanes. Investigation of the effects of curvature when the truss is built on a tangent between piers indicated that the lane loading at the panel points varied from 95% to 105% of the average lane load for the span. Additional studies indicated that the use of average lane loads within each span for computing the stresses was justified. The trusses were designed on this basis.

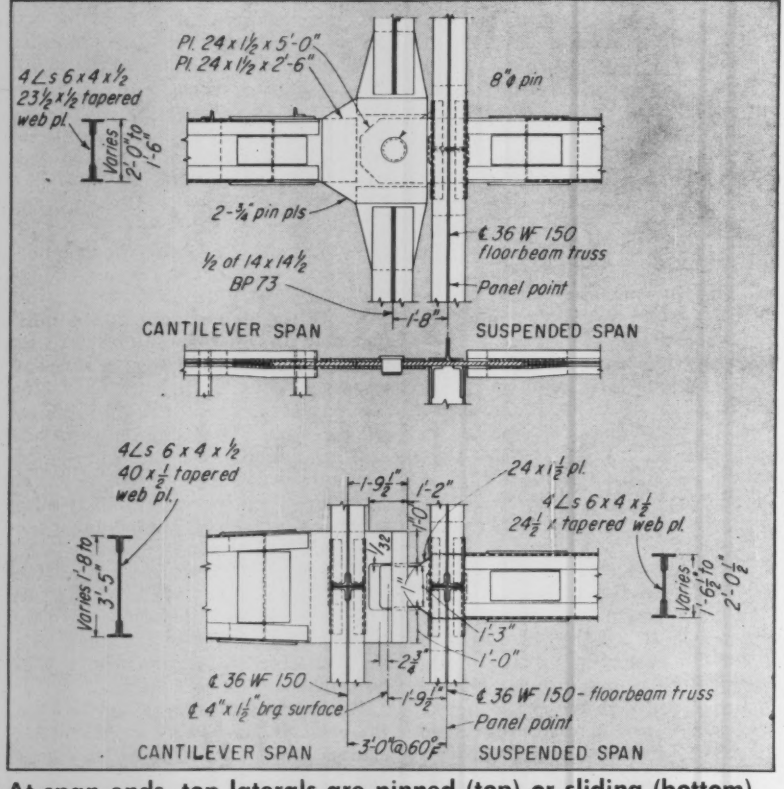
It is at the transition points between the plate girder approach spans and the central truss section that the two large box girders and the "universal joint" bearings are found. The box girders



Pin connection in cantilever span carries . . .



Suspended span by eye-bar compression link.



At span ends, top laterals are pinned (top) or sliding (bottom).

span the bridge transversely and on their top flanges, support the longitudinal girders of the approach.

Each of the girders is 111 ft 6 in. long, 12 ft 10½ in. deep, 2 ft 9½ in. wide, and weighs about 93 tons. The basic section of the girders has ½-in. side plates, ⅞ in. top and bottom plates, and 8x8x1 in. corner angles. At both the top and the bottom there are two cover plates, one ¾ in. thick, the other, ⅞ in. thick.

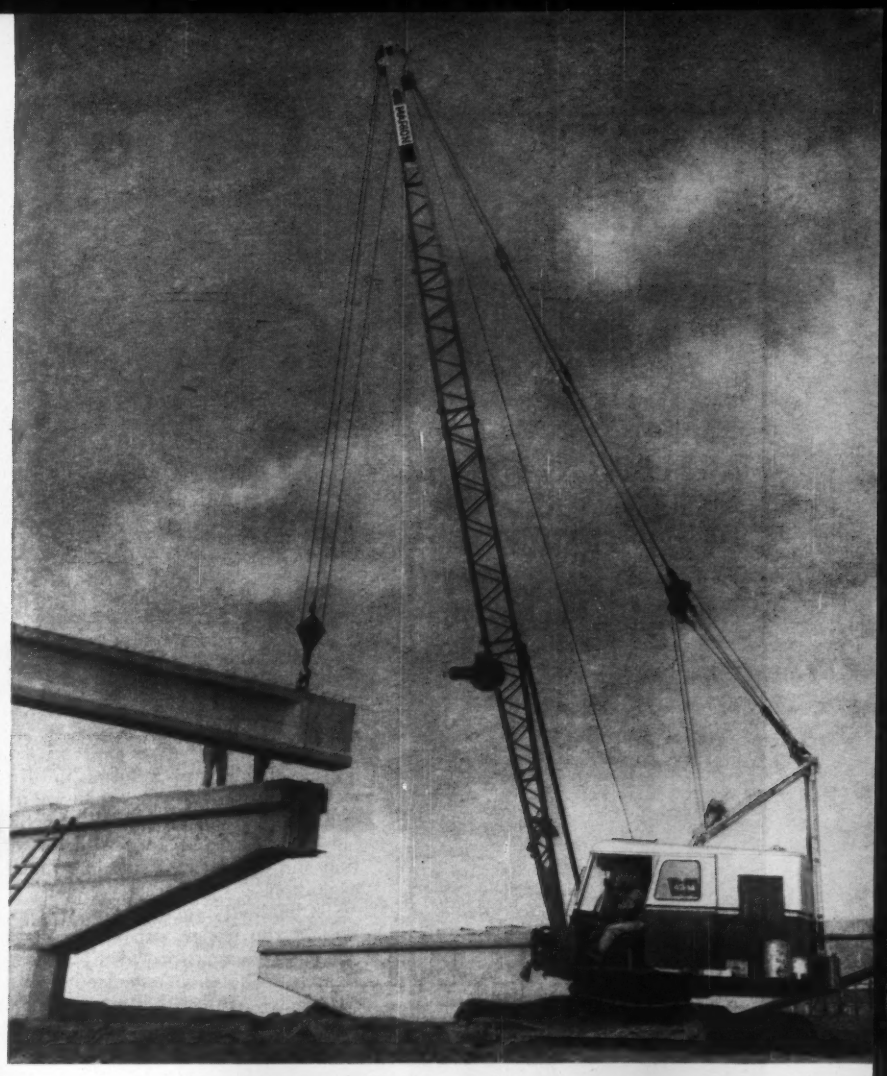
Because of the great length of the box girders, it was necessary to provide for transverse movements as well as longitudinal movements. In addition, the height and rigidity of the box girder made it necessary to provide for rotation in all directions.

The two-directional expansion is made possible by a bearing set at one end of the girder. The bearing contains two nests of five rollers each, set one above the other at right angles (see drawing).

Rotation is permitted by inclusion in the shoe of a 2-ft 2-in.-dia cast bronze bearing disk. This disk has a bottom surface that is flat and a top surface that is rounded in all directions on a 6-ft 8-in. radius. The opening in the top bearing plate is ¼ in. larger in diameter than the disk, and its sliding surface is cut to a slightly larger radius.

At the other end of each girder is a

Pre-stressed concrete or steel . . . . You can't find a better BRIDGE BUILDER



27-ton crane muscles, supplemented by dragline and clamshell help as needed, made this Marion 43-M a triple-threat machine on Oklahoma's largest bridge using prestressed concrete beams.

This Marion wears 36-inch shoes on 15-foot crawler belts that shrug at soft footing, even when handling heavy loads. Its torque converter and foot accelerator let the operator inch big loads into place with ease, confidence and accuracy.

The availability of power load lowering, third drum and independent propel permits owners to custom-select outstanding performance features suited to their job needs.

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Model M-322 Pictured
TRENCH SIZES FOR 4 MODELS:
16" 12" 10" 8" 6" 4" 3"
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BOX GIRDER being trucked to erection site is 111 ft long, weighs 93 tons. Two such girders were used, one set transversely at each end of the deck truss section.

bearing that permits rotation in all directions but provides for expansion only in the longitudinal direction. This bearing has a bronze bearing disk for rotation and one set of rollers provides for expansion.

Throughout much of the truss section of the bridge, expansion rotation and wind shear are provided for conventionally. The shoes are fixed at alternate piers. At the other piers, the shoes provide for longitudinal expansion by means of a nest of five rollers. Transverse expansion, except at the end piers, is resisted by the piers themselves. Cylindrical pins in the shoes provide for rotation.

However, in four alternate truss spans there is an unusual linkage between the cantilevered spans and the suspended span. The weight of each suspended span is transferred to the cantilevers through four pairs of heavy links that permit both expansion and rotation. Each of the links is an eye bar, 1 ft wide, 5 in. thick, and 6 ft 9 in. long. At either end of the bar, 5 ft (c-c) are holes for a 10¼-in.-dia pin. The upper pin connects the bars to the end vertical member of the suspended span. The bottom pin connects the bars to the end of the bottom chord of the cantilever. Thus the live and dead loads of the suspended span are transferred in compression to the cantilevers through the links.

Details at the top chord and top laterals, however, differ at opposite ends of each suspended span. At the expansion end, both the suspended span and the cantilever have vertical members. Here there is no connection between the top chords of the two spans and none between the top laterals. At the centerline, there is a tongue-and-groove detail in the plane of the top laterals that prevents transverse movement and transfers wind shear but permits a longitudinal movement. At the fixed end of the suspended span, there is a single vertical member and pinned connections between the two spans. Two triangular gusset plates mounted on the suspended span slide inside the top chord of the cantilever, pinned to each other with a 3-in.-dia pin through a $3\frac{1}{32}$ x 4-in. slotted hole in the top chord of the cantilever. At this support, the top laterals of the two spans are connected midway between the trusses with a single vertical pin 8 in. in diameter. This pin, which is the only connection between the top laterals of the two spans, serves three purposes. It is a transverse wind shear device: it fixes the suspended span longitudinally, and it permits transverse rotation.

The Inner Belt Freeway Bridge is a part of the Interstate Highway System.

General contractors for the construction of the bridge were the Horvitz Co., Cleveland, for piers of the truss spans and for the east approach; John F. Beasley Construction Co., Chicago, for the superstructure truss spans; and National Engineering and Contracting Co., Cleveland, for the West approach. Fort Pitt Bridge Works fabricated the structural steel for the entire bridge.

Designer was Howard, Needles, Tammen & Bergendoff, under contract with the City of Cleveland. Louis L. Drasler, Director of the Cleveland Department of Public Service represented the city.

Construction supervision was by the Ohio Department of Highways.

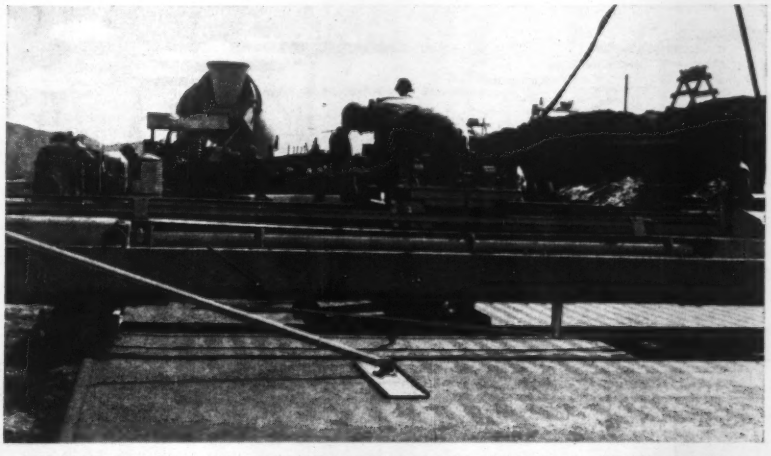
FLEET OF TRUCK MIXERS maintains steady concrete production for the spreader, finishing machine and longitudinal finisher on North-South 422 Freeway.

State's first limited access freeways paved with ready mixed

THE INITIAL LEGS of New Mexico's first controlled access state highways, North-South 422 and Coronado Freeway, at Albuquerque, were both paved with ready mixed concrete. A total of 17,290 cu. yds. of ready mixed concrete was produced to State Highway specifications and delivered on maintained schedules of up to 948 cu. yds. (1600 lin. ft. of slab) a day. Both jobs are 4-lane divided highways, 24′ x 8″ on each side of the median dividers.

Increasing use of ready mixed concrete for paving highway slab (it has long been preferred for highway structures) has resulted from demonstrated ability to meet the requirements of both highway engineers and paving contractors. Typical requirements include the ability to discharge 2″ slump concrete at the rate of a cubic yard per minute and to maintain a steady production flow (an hourly output 50% greater than that of a 34E dual drum paver is reasonable scheduling). A fleet of truck mixers also has the advantage of being able to deliver concrete simultaneously to more than one location on a paving job. And use of ready mixed concrete relieves the contractor of the need to set up a batching plant, stockpile materials and haul and mix on the job.

Highway standards are high standards.



STARTING THE DAY'S RUN. Concrete is a 6½-sack mix with 1½% air entraining additive. Specifications called for 4,000 psi at 28 days. Contractors: Allison & Haney, Inc., (North-South 422) and Longenbaugh & Coe, Inc., (Coronado) both of Albuquerque. Project engineers for New Mexico State Highway Dept.: Walter Brown and R. E. Long.

State Highway Departments, in increasing numbers, specify that ready mixed concrete be processed in truck mixers of certified design, capacity, mixing speed and water control accuracy.

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MIXER
MAXIMUM CAPACITY
CERTIFIED BY THE TRUCK MIXER MANUFACTURERS BUREAU TO COMPLY WITH TMS STANDARDS FOR TRUCK MIXERS AND AGITATORS AS APPROVED BY THE N.R.M.C.A.
9 1/4 CUBIC YARD AGITATOR
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You have a right to insist on this Rating Plate. It certifies compliance with the high industry standards which are maintained for your protection by the

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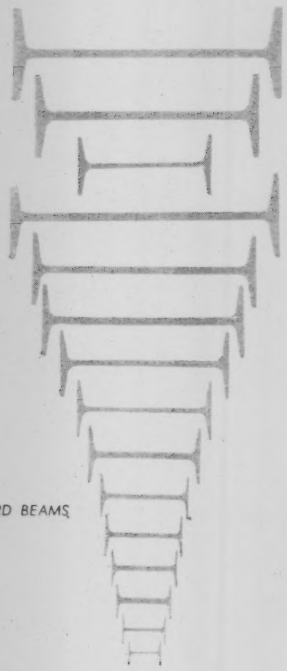
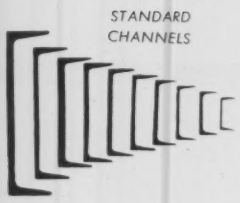
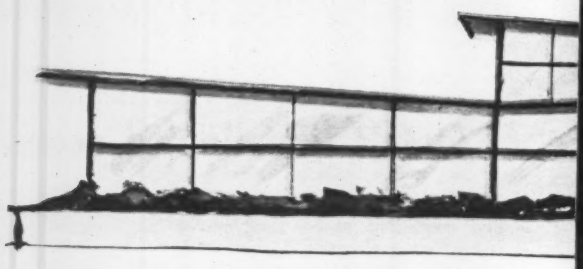
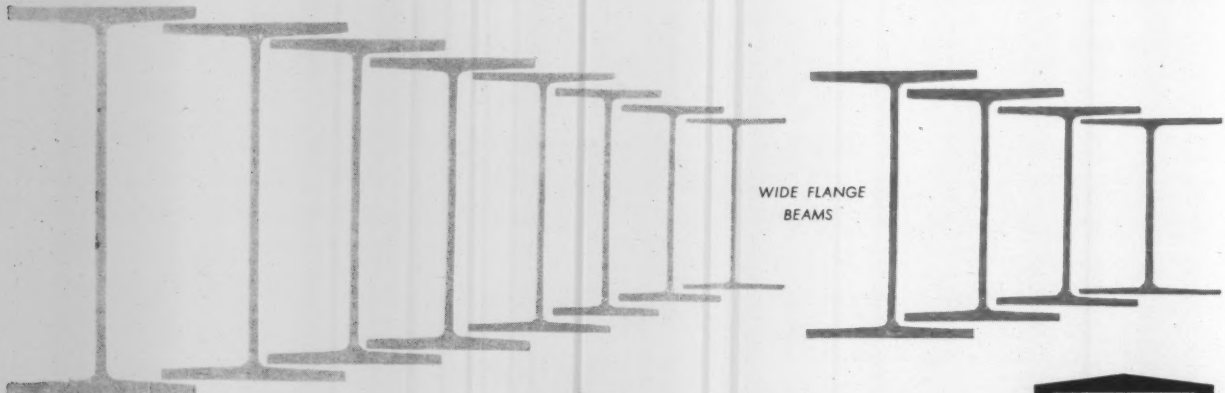
You've got plenty to work with when you design with structural steel

And it's all quickly available through your local steel fabricator. Not only the standard shapes you see here, but many specials as well. What's more, your fabricator is a regular Houdini when it comes to fabricating these shapes to meet your most intricate designs. He works his magic fast, too, to assure *prompt* delivery. And he's a good man to know when you're looking for sensible solutions to thorny problems. Call him in on your next job. You'll be glad you did.

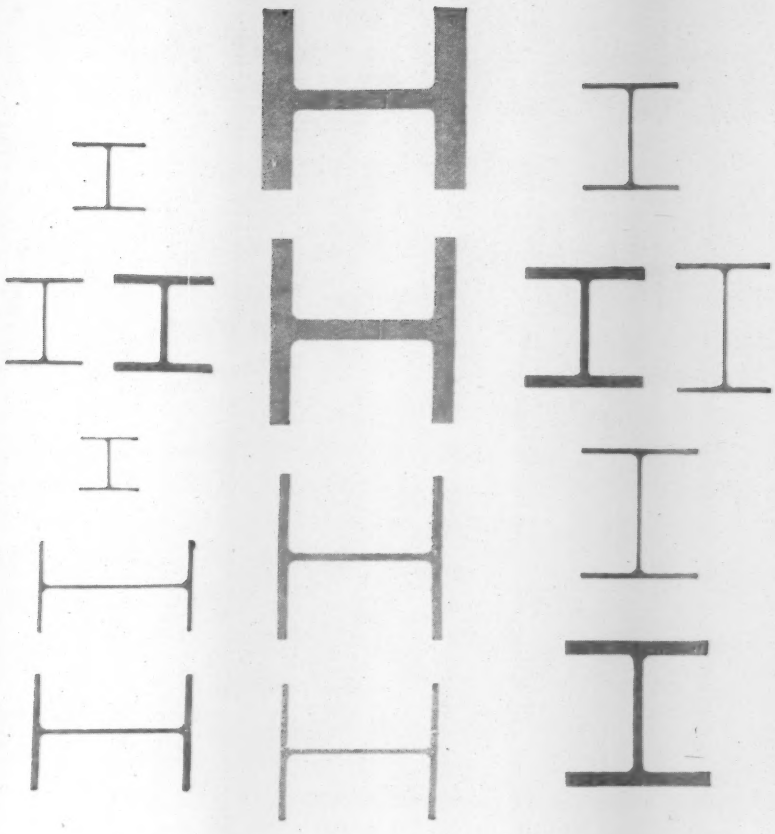








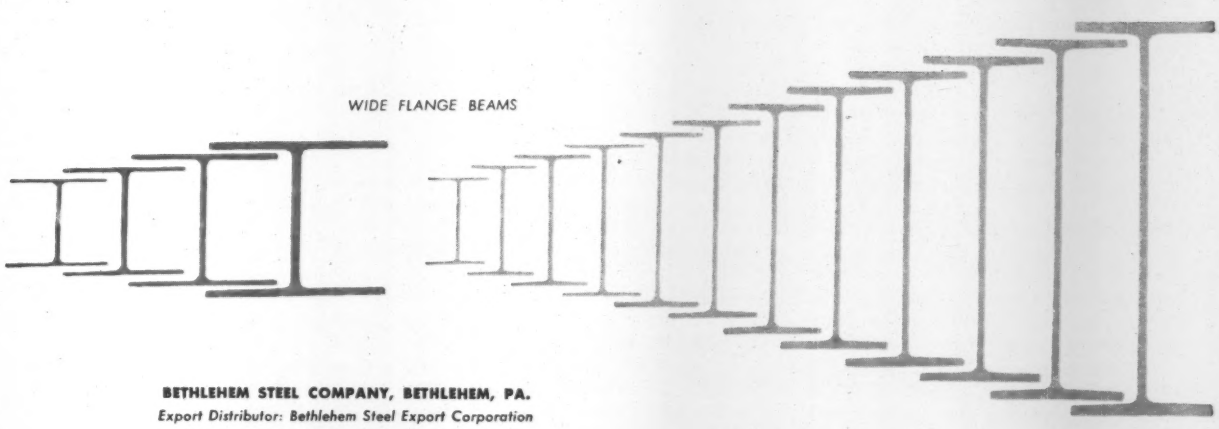
BETHLEHEM STEEL



COLUMNS

ANGLES

WIDE FLANGE BEAMS



BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Slurry-filled trench (arrow) is excavation for cutoff wall at Wanapum Dam.

Bentonite Slurry Stabilizes Trench,

Bentonite clay slurry is saving several million dollars in the construction of Wanapum Dam on the Columbia River. Trenches up to 80 ft deep, filled with the soupy mixture during excavation, are remaining stable and free of groundwater without benefit of sheetpiling, shoring or other strengthening.

Both the designer and the contractor have demonstrated confidence in the slurry-trench method. Harza Engineering Co., designer and construction supervisor for the owner, the Grant County (Wash.) Public Utility District, specified slurry stabilization for the cutoff trenches beneath 5,400 ft of earth embankment included in the main dam. Then, without a specification requirement, Grant County Constructors, the joint-venture contractor, adopted the method for cutoff trenches under a cofferdam protecting the spillway and powerhouse.

Neither firm was trusting to luck. Pre-job tests showed the slurry-trench method to be not only effective, but also cheaper by half than steel sheetpiling or a grout curtain.

Time as well as cost figured in selection of the slurry method. The technique is reported to speed construction considerably. And on this job more than most, time is money—bonus cash for early delivery of power. (At Wanapum's sister structure, 18 miles downstream, Merritt-Chapman & Scott Corp. is now piling up bonus credits that may top $4 million under a contract similar to that in force at Wanapum.)

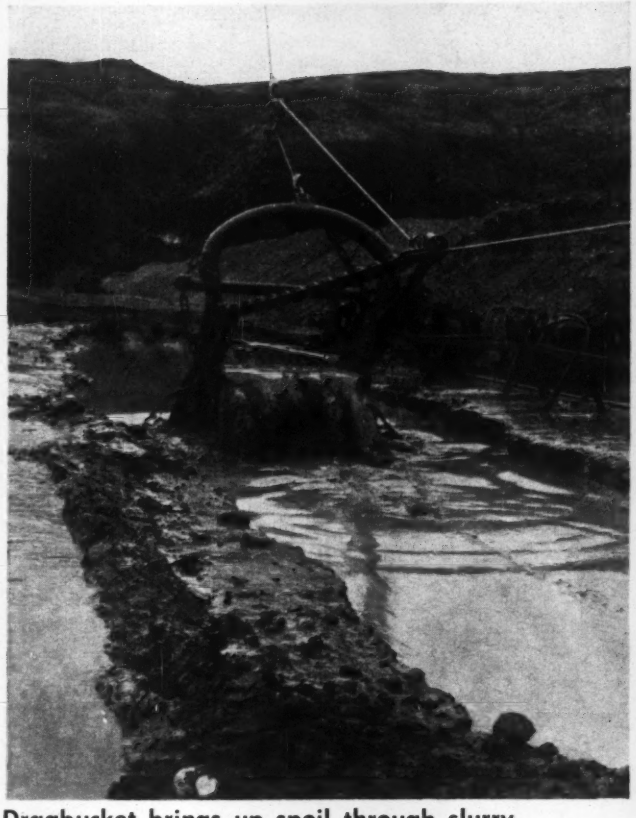
Maximum bonus that the contractor can earn on Wanapum is $3,276,000. The bonus would start in September, 1963, if two generating units are in service by then. It would amount to $1,200 a day per unit. Earlier installation won't help. The PUD won't need the power before then. The contractor would earn the maximum bonus by having six units in operation by the end of 1963. The schedule without bonus calls for installation of all 10 units, totaling 831,000 kw, by January 1, 1965.

The slurry-trench cutoff for the cofferdam was completed last fall in about two months. This assured completion of the cofferdam early this year. First concrete placement is expected in the spillway structure late this winter.

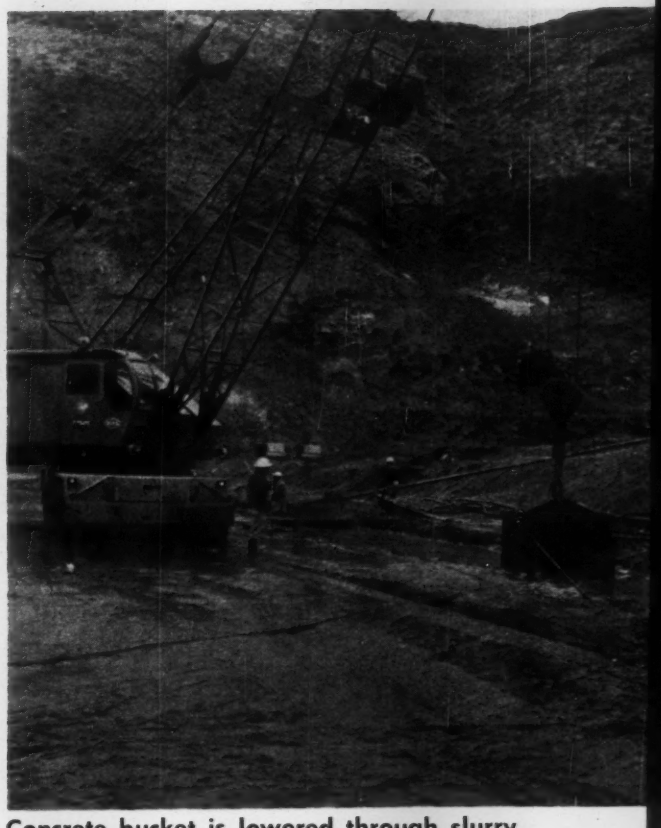
Wanapum is probably the first dam in the U.S. to be built with aid of slurry stabilization. The method was used in cutoff wall construction in Europe, however, at least as far back as 1950. It has been used in both North America and Europe for other types of construction excavations—walls, sewer trenches. It has also been used as an impermeable curtain around a construction excavation to prevent groundwater infiltration. Bentonite has been used extensively in oil-well drilling. It is sometimes called "drillers' mud."

Occasionally in-place clay may be used in a stabilizing slurry. In 1939 a Chicago contractor sank 4-ft-dia shafts 80 ft to bedrock using a combination of jetting and cutting. A cutter head on the jet pipe chewed the clay into particles fine enough to create a stabilizing suspension in the shafts (ENR Oct. 12, 1939, p. 61).

When placed in a trench under excavation, bentonite slurry supports the trench sides to maximum depth practicable by drag-bucket excavation. It also prevents entrance of groundwater.



Dragbucket brings up spoil through slurry.



Concrete bucket is lowered through slurry.

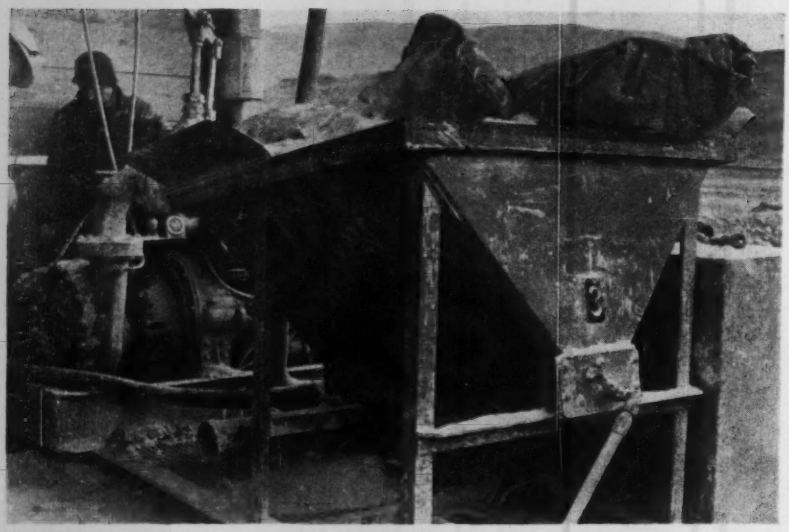
Keeps Groundwater Out

At Wanapum, the slurry trenches reach depths as great as 80 ft.

• **How it works**—When mixed in water sodium bentonite becomes sheathed in a protective film of water molecules, which results in a noticeable swelling of the clay particles. The adsorption of water increases the effective diameter of the particles and at the same time inactivates a portion of the water in which the clay is suspended. This increases the viscosity of the mixture. And the resulting specific gravity is slightly greater than that of water.

In the trench the clay particles enter the partly exposed voids of the trench walls. Hydrostatic pressure created by the slurry forces the water from the voids. The bentonite particles begin piling up in thin layers within and around the voids forming a cake that completely chokes the void openings. As the cake is built up it becomes impervious to penetration by groundwater and at the same time minimizes water loss from the slurry through the side walls. The cake buildup along the walls tends to prevent localized raveling or sloughing. That, together with outward pres-

HEAVY EQUIPMENT IS NO THREAT to the unreinforced cuts, even though trenches are up to 80 ft deep and have vertical walls.



PORTABLE BATCHING PLANT mixes slurry. Bentonite is shipped to job in dry powder form, then mixed with water in the proportions of 1 to 12.

RECONDITIONING SYSTEM draws slurry from trench continuously, screens out larger soil and sand particles and pipes the mixture back to the trench.

sure of the mud slurry, prevents cave-ins.

The trenches for the Wanapum cofferdam and embankments are being held to minimum widths of 7 and 10 ft, respectively. Width of the cofferdam trench was set at 7 ft to accommodate a 4½-cu-yd dragline bucket.

Trench width also facilitates removal of large boulders known to be present. Width of the embankment trench was set by Harza to obtain the necessary thickness of impervious fill material to resist passage of groundwater. In actual practice, trench width reached 12 ft at times.

As soon as excavation reaches groundwater level—generally within 3 ft of surface—slurry is pumped into the trench through 8 in. steel pipe. Level of the slurry is maintained above groundwater level as the excavation continues to bedrock. So far there have been no indications of unstable conditions. The only sloughing of the trench sides has been minor and local, above the slurry level.

When bedrock is reached with the bucket, an air probe is used to loosen the last remaining particles of earth. Dragline operators say they can tell "by the feel" when bedrock is clean.

• **Concrete plug**—A concrete seal at least 3 ft thick is placed on the rock at the bottom of the trench to prevent erosion by groundwater that might pass through the rock crevices. The concrete is lowered in an open 4-cu yd bucket by an 80-ton truck crane. At the bottom of the trench, the bucket's air-operated gates are opened. Because the concrete density is greater than that of the slurry, the two do not mix to any great extent if properly handled. Since the concrete is used as a sealer and not as a structural material, there is no concern about minor mixing.

Early in the operation a closed bucket was used and the concrete was forced out under air pressure, but this threw some of the cement from the concrete into the slurry, making the slurry denser. The gravity flow concrete deposition now used avoids significant slurry contamination.

The concrete has a 6-in. slump and includes a retardant admixture. This is intended to delay the set until an overlying 2-ft-thick layer of impervious backfill material can be placed to form a bond with the concrete.

In excavating the cutoff trench, waste material thoroughly soaked with slurry is piled a short distance from the trench allowing some of the slurry to drain back into the trench. On the backfill operation, a bulldozer working 300 to 500 ft behind the dragline shoves material back into the trench, depositing it through the slurry. And the excavated material is mixed with enough local impervious silt to satisfy specifications as to gradation.

As the backfill material drops through the slurry in the trench, the caking action that has taken place at the perimeter of the trench takes place throughout the thickness of the backfill mass to establish an effective cutoff.

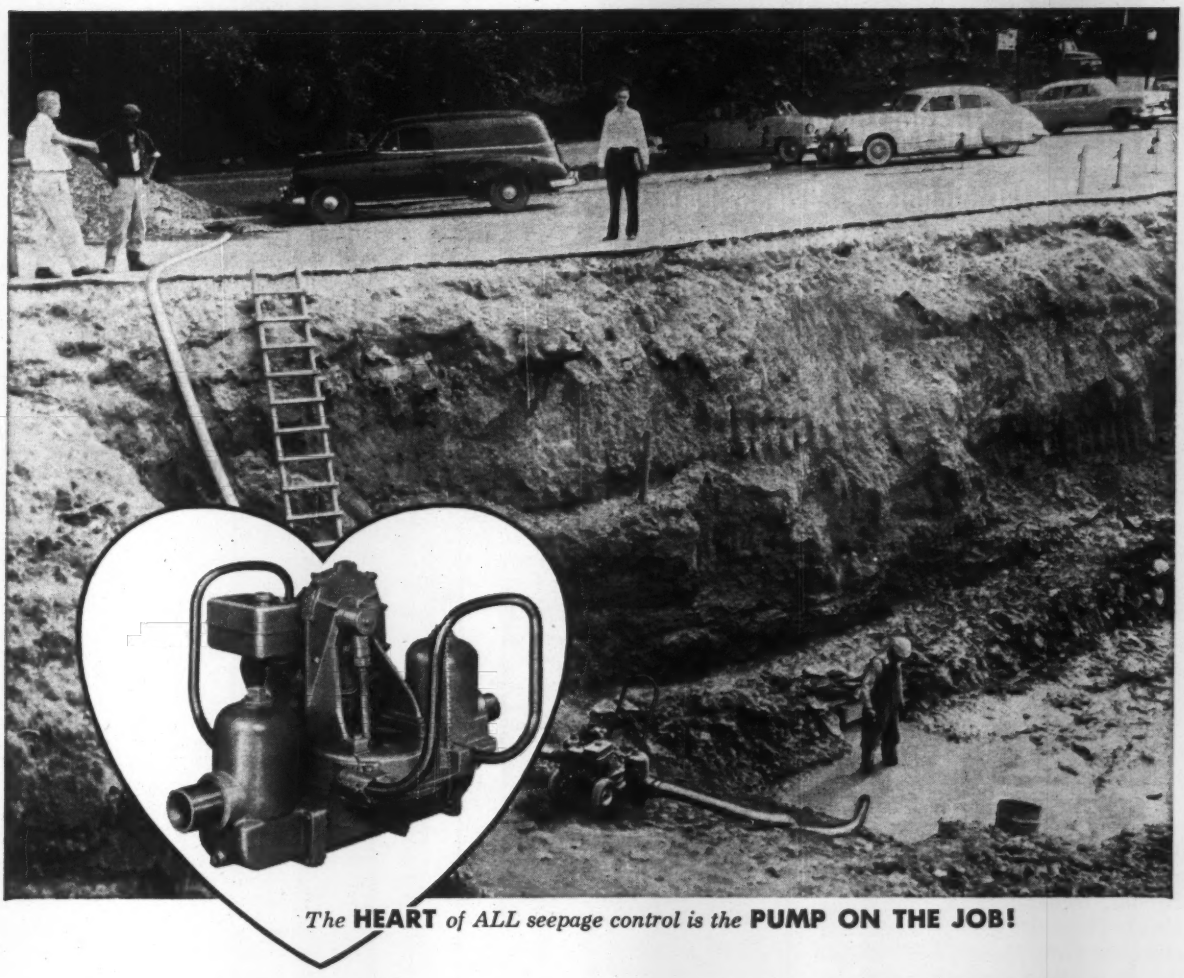
In a test trench installed a year ago field density tests made more than two weeks after backfilling gave wet densities of more than 150 lb per cu ft and dry densities of about 130 lb per cu ft measured some 3 ft below the normal water table. The backfill material does not need compaction.

• **Density limited**—Wanapum specifications call for a slurry with a density not more than 80 pcf. This limit was set to avoid any impedance to the settlement of backfill material to the bottom. However, it also was thought that lower density would reduce the tendency of the dragline bucket to float.

As introduced into the trench the slurry weighs about 65 pcf. This, however, increases quickly to more than 70 pcf as fines become suspended in the slurry.

In the cofferdam trench, on the other hand, where the specifications do not apply, density was allowed to exceed 100 pcf. This seemed to have no effect on dragline operations or on backfilling at the depths being excavated—up to 50 ft.

Density is measured frequently in the embankment trench to check against deviation from specification as



The **HEART** *of ALL seepage control is the* **PUMP ON THE JOB!**

Muddy, dirty water no problem for a "MUD HOG"!

Recently a new office building containing a swimming pool was built at York Road and Walker Avenue in Baltimore. During excavation, a Marlow Model 302-B lightweight "Mud Hog" was used to remove muddy seepage water to keep the hole dry and workable. According to Charles R. Marshall, Job Superintendent for C. W. Jackson Associates, Inc., "the pump handled as much as 18,000 gallons in 6 hours and operated on suction lifts as high as 20 feet."

Mr. Marshall stated that this light-weight "Mud Hog" was the best pump he has ever had. "As far as I'm concerned, it's a *real* pump," he added. He particularly liked its light weight and ready portability...moved from one pumping location to another with speed and safety.

In addition to the "Mud Hog," Marlow also builds a complete line of AGC rated self-priming centrifugal pumps. These pumps are all readily available from any of the three strategically located Marlow plants. Look for the heading "Marlow Pumps" in the "Yellow Pages" of your classified telephone directory or ask your Marlow dealer about the Marlow line of contractor's pumps for tough job application.

Marlow PUMPS

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MARLOW PUMPS

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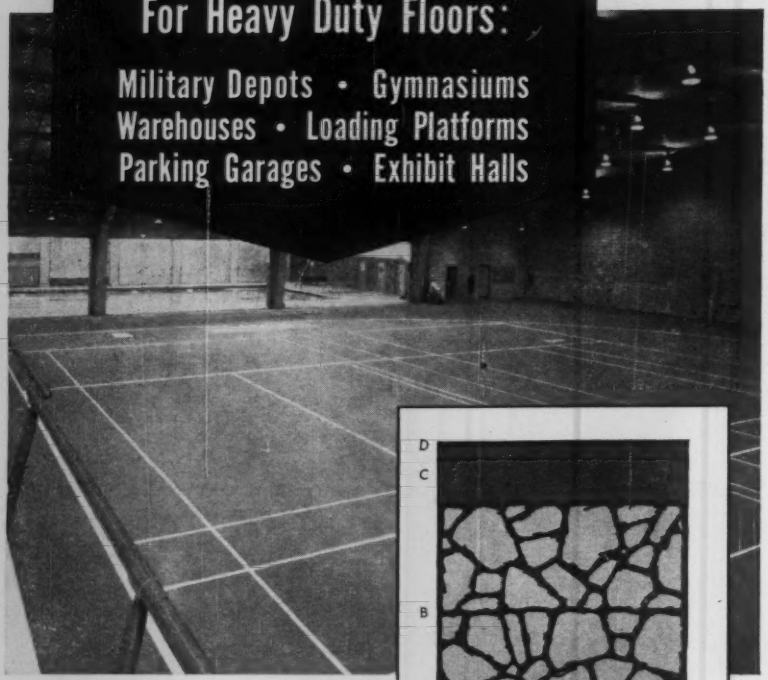

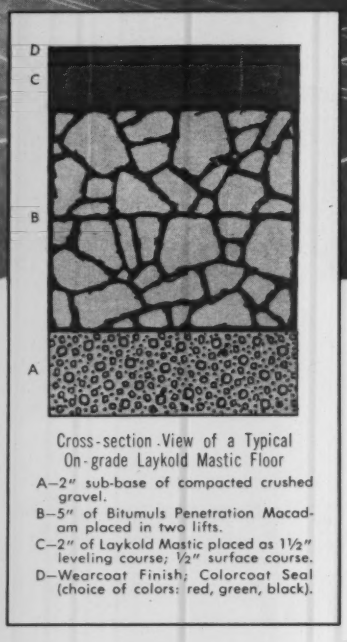

Cross-section View of a Typical On-grade Laykold Mastic Floor

A—2" sub-base of compacted crushed gravel.
B—5" of Bitumuls Penetration Macadam placed in two lifts.
C—2" of Laykold Mastic placed as 1½" leveling course; ½" surface course.
D—Wearcoat Finish; Colorcoat Seal (choice of colors: red, green, black).

Heavy Duty Floor Mastics are made of Laykold Floor Mastic Binder, cement, sand, and stone chips. These are easily mixed and screeded into place; hard-trowelled to a dense, smooth surface; and cured to a hard, durable finish.

"Bonus Benefits" of Laykold Mastic Floors:

- No dust or spalling normally associated with concrete
- Resilient, warm, water-resistant, and easy on the feet
- Easy to maintain and repair

For on-grade construction Laykold Mastic Floors are often "built from the ground up". One recent example: the Field House floor specified and built for the Waukesha, Wisconsin, High School, shown above.

This floor, Bitumuls Penetration Macadam construction, has a Laykold Mastic surface, Wearcoat finish, and a "two-tone" Colorcoat seal (in green and red). They use it for a full program of athletics; plus auto, stock, and home shows.

Laykold Mastics are also used to surface concrete floors and as underlayments for floor tile.

There's a Laykold Mastic Floor to meet industrial, commercial or institutional needs. Call us for "typical specs".

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well as infiltration of groundwater. Samples are taken by inspectors in a row boat or are pumped from near the trench bottom.

To control the amount of sand in suspension, the slurry in the trench is circulated through a twin system of 20-mesh vibrating screens followed by stilling basins with open-impeller, dredge-type pumps.

Fresh slurry is continuously pumped into the trench to replace the slurry lost in excavation. When the slurry in the trench is found too light, new slurry of greater density is added.

• **Slurry mixing**—The slurry is mixed in three portable plants. Each has a special jet-type mixer developed by Cronese, Inc., of Glendale, Calif., licensees of the patented slurry method. Each plant has a capacity of about 15 barrels a minute.

Powdered bentonite in 100-lb sacks is hauled by truck from a rail siding and stacked alongside the 11-cu ft mixing hopper. The bags are manually opened and the material emptied into the hopper at a rate from 2½ to 7 bags a minute. The bentonite is released through a narrow opening in the hopper bottom. It drops into a high-velocity airflow created by a stream of water under 120-psi pressure at a rate varying from 400 to 600 gpm.

The bentonite is sucked in a pencil-thin stream into a mixing chamber where individual particles are bombarded by water from 16 small-diameter jets. The slurry thus formed is in the ratio of one part of bentonite to about 12 parts of water.

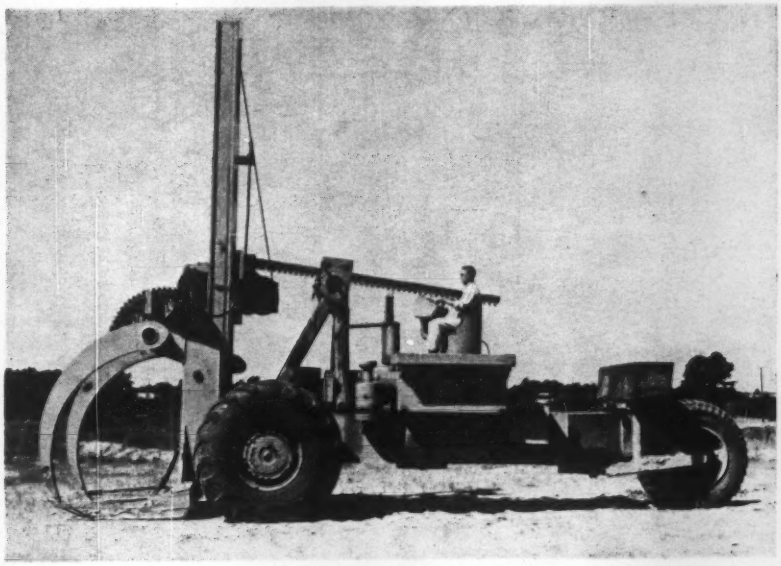
Water is pumped from the river by one pump. A second pump at the mixer creates the necessary pressure.

The mixed slurry passes from the mixer into a 10,000-barrel sump. Here it is circulated by centrifugal pumps to create agitation and complete the hydration of the bentonite. The slurry is then pumped through another 8-in. pipe to the trench.

The entire project will require an estimated 500,000 barrels of slurry. Each ton of bentonite makes about 80 barrels of slurry.

E. B. Gibbons is manager and R. R. Ries supervisor of production for Grant County P.U.D. R. B. Jackson is resident engineer for Harza.

Grant County Constructors, who hold a $93-million contract awarded last year, is a joint venture sponsored by Morrison-Knudsen Co., Inc. Others in the combination are Henry J. Kaiser Co., Macco Corp., Raymond International, Inc. and F&S Contracting Co. George Piedmont is manager for the contractor. H. T. Wyatt, president of Cronese, Inc., is supervising the slurry-trench operation.



Fork Lift Carries 17 Tons

FT Stackers—three-wheeled fork lifts of 17-ton capacity—are suited for handling a wide range of materials in heavy manufacturing and construction. They have been used to handle steel products, logs and prestressed concrete sections, according to the manufacturer.

Forks are 5 ft long with a lifting range of 16 ft above ground. Gripping "tusks" are optional, as are "kicker chains" for load ejection.

A 195-hp diesel engine, driving generators under the hood, supplies power for the lifting operations. R. G. LeTourneau, Inc., 2399 South MacArthur, Longview, Tex.

Belt Loader for Motor Grader

A belt loader attachment for large motor graders incorporates a 30-ft belt and can load to a height of 15½ ft. The machine can cast up to 1,750 cu yd per hour, and load up to 800 cu yd per hour, the manufacturer says.

A cutting disk 32 in. in diameter feeds material to the trough-shaped belt, which travels at 614 ft per min. A stabilizing tandem with rubber tires carries most of the weight of the conveyor while the machine is in use. For movement to another job site, the conveyor is disconnected and trailed behind the motor grader. Jebco, Inc., Blair, Neb.

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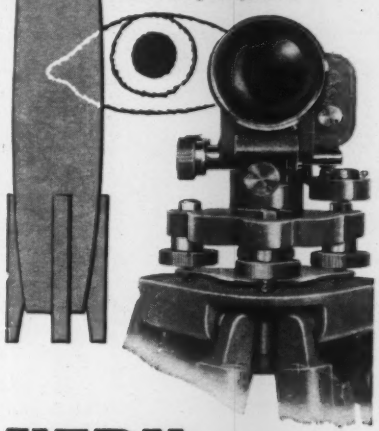

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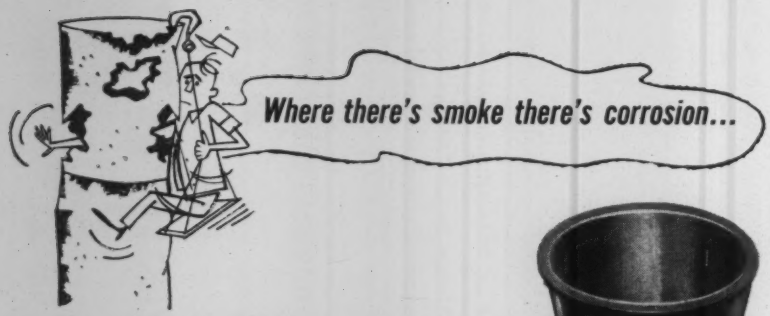

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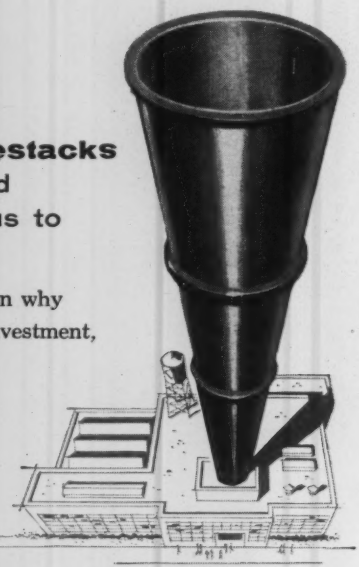

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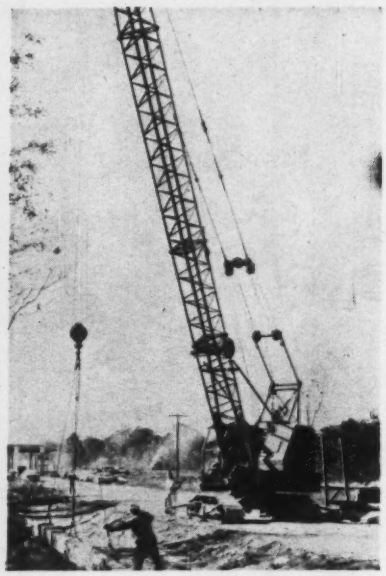


Koehring 'Sprawler' Crane Lifts and Carries 24 Tons

Koehring has added the Model 330 "Sprawler" to its line of crawler-mounted cranes. The machine, with its pivoting outriggers set, can lift 30 tons at a 12-ft radius with a 30-ft boom.

With the same boom and without outriggers, the Model 330 can lift and carry just under 24 tons at a 10-ft radius. KOEHRING DIVISION, KOEHRING CO., 3026 WEST CONCORDIA AVE., MILWAUKEE 16, WIS.

Movable Partitions Give More Design Flexibility

Two movable partition systems, the Delineator and the Signature, feature 2¼-in.-thick, insulated panels faced with 20-ga steel. They are available in 4-in. modules ranging in size from two to five ft wide.

The Delineator line stressses design flexibility, furnishing panels in clear and obscure glass as well as solid metal panels. Glass area may be full or partial. Panel accessories—louvers, wickets, bookshelves, transoms, and storage closets—are also available.

The Signature line combines most technical features of Delineator for more conventional uses in commercial and industrial buildings. A four-way post gives this system great flexibility in locating partitions.

Hoyt L. Sherman, professor of Fine Arts at Ohio State University, served as aesthetic consultant on research and development for the new system. THE E. F. HAUSERMAN CO., 7516 GRANT AVE., CLEVELAND 5, OHIO.

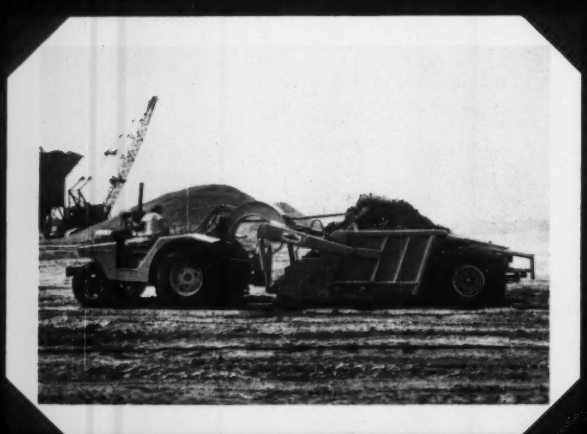
The changing Industrial picture finds John Deere in the foreground—

making New Savings, New Profits in countless basic industries

The changing Industrial picture

In Construction

The John Deere "440," on tracks or wheels, in gasoline or Diesel, is fast becoming the builder's byword for economical earthmoving and materials handling.



In Road Building

Setting new standards of performance on road construction of all kinds, the John Deere "840" Diesel with Hancock scraper loads and dumps sticky clay, powdery dust with ease.

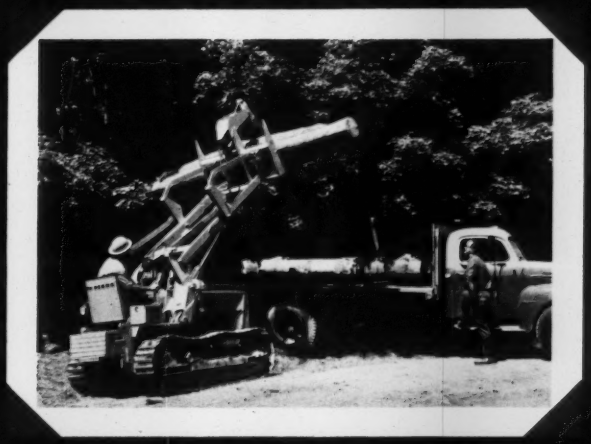
John Deere is in the Foreground on every Industrial Front

In Public Works

Tax dollars are well invested when they buy versatile, low-cost John Deere loaders, backhoes, pipe-handling, mowing, and landscaping equipment. Utility companies, too, rely on John Deere for economical work.

In Logging

Giants and "gyppos" alike know the John Deere Crawler as a rugged, reliable producer and use it with matched John Deere log arches, fireline plows, log loaders or winch-and-dozer combinations.



In Sand and Gravel

Here, power and stamina for handling heavy material day after day, low operating and maintenance costs, and simple controls for handling ease and fast cycle times make the "440" a favorite.

In Oil and Gas

Trenching, pipe bending and handling, backfilling—John Deere Crawlers shave costs on these jobs at both ends of the line. Producers, pipe liners and refiners rely on John Deere units for low-cost maintenance.

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and Now—
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The traditional pair of steering levers are gone from John Deere Pilot Touch "440" Crawlers. The direction reverser lever has disappeared, too. Clutch and brake pedals are still there, but you'll seldom need them.

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Daniel, Mann, Johnson and Mendenhall started small, but they've gone . . .

Around the World in 14 Years

What makes a big, successful organization tick? Ambition? Hard work? Good relations with clients and among the top brass?

All of those factors are important to success. And they all are important in the growth of Daniel, Mann, Johnson & Mendenhall, a firm that started 14 years ago to become one of today's biggest architect-engineer organizations.

But there is something special about DMJM, something that permitted a group of young men as unlike each other as steak and ice cream not only to guide the company's rise to the top, but to exploit bigness efficiently and continue to grow.

That something special is the importance the partners place on personal satisfaction—that is, each working at what he likes best toward fulfilling not only professional but personal aspirations. How partners so different from each other have managed to accomplish this primary objective within the framework of cooperative organizational effort is the real DMJM success story.

And it wasn't easy.

First there were three: Philip Daniel, a hard-working, quick-on-the decision, fun-loving extrovert; S. Kenneth Johnson, a former child-actor ("Our Gang" comedies) who's a natural-born joiner and speech-maker; and Arthur Mann, who frequently is cast as the mediator in disagreements. They started with a staff of one secretary in the small southern California town of Santa Maria in January 1946.

Southern California was the fastest-growing area of the fastest-growing state. It needed new schools, new office buildings, new industrial plants, new everything—and the three young partners, all architects, were right on the spot. Soon a "branch" office in Los Angeles had grown into home-base, and by 1949 the partnership was no longer small business.

The firm has used its California experience as a springboard to world-wide prominence. DMJM is currently a leader in design of missile facilities, working under the National Aeronautics and Space Agency in development of Wallops Island, Va., and with joint venture partners designing underground launching facilities for the Air Force's Titan.

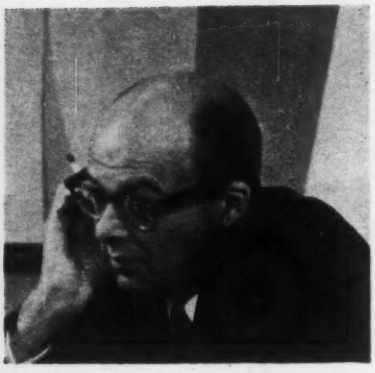
The firm now has a staff of 500 employees, offices in Washington, London and Los Angeles, and projects under way in Venezuela, Thailand, Honolulu and Guam. Their base of operations has also fingered out to Alaska, Korea, Japan, Okinawa, India, Italy and France.

But big business breeds big management problems—problems the three young consultants were not entirely prepared to deal with, problems that had a hand in forming ulcers for two of them, problems that almost wrecked the business before they were finally solved.

The principal problem was that profit and expansion was not developing as efficiently as was new business, which was coming in almost faster than the partners could handle it. Business problems beyond the partners' professional experience led to personal differences. Phil Daniel was once quoted as saying: "We knew the business needed man-

Philip Daniel

Arthur Mann



S. Kenneth Johnson

aging, but each of us thought the other should do it, and nobody could get three votes."

After everything, including psychological tests, failed, the partners turned to the management consulting firm of Booz, Allen & Hamilton, which assigned one of their men, Douglas A. Russell, to the formidable reorganizing tasks.

Consultant Russell so impressed the partners that they took him into the firm. Thus began a series of changes that resulted in:

- Breaking the firm down into departments, with one partner at the head of each department.
- Bringing the engineering work inside the firm instead of subcontracting it out. Irv Mendenhall came in as the firm's first engineer-partner.
- Writing a "Code of Partnership Ethics" to define responsibilities, map out each partner's relationship and behavior to each other and to the firm.
- Substituting the inefficient, often squabbling system of group decision with more direct managerial control, under Douglas Russell as General Manager.

Mr. Russell left the partnership last year to establish his own overseas development firm. In the year since Russell left, growth of the firm has continued to the point where the five partners (the original three plus Stanley A. Moe and engineer Mendenhall) have incorporated, effective at the beginning of this month.

For the present, the five partners—now stockholder-directors—plan no changes in the effective methods of operation developed over the last several years. And they will keep the partnership organization in those states where laws prohibit corporate practice.

As they did under their partnership organization, the five principals will hold a monthly formal meeting, with an agenda prepared in advance. Decisions have for some time been made by majority vote, instead of the once-required unanimity.

The monthly meetings are augmented by an annual three-day meeting —a combination brainstorming session and confessional—at which work for the past year is reviewed, goals for the coming year are established, and all partnership problems, personal and professional, are dragged out into the open and analyzed.

The partners consider these annual meetings vital—so vital, that for a recent one, Daniel came from Washington, Johnson from Italy, Mendenhall from Venezuela, Moe from England and Russell from Tokyo.

Each of the principals now has definite areas of responsibility, although earlier they had rotated jobs. Stan Moe is now Executive Vice-President and General Manager, overseeing the day-to-day details of internal organization; Phil Daniel is Executive Vice-President for commercial and systems design, and continues in charge of business development; Art Mann is Executive Vice-President for institutional facilities; Ken Johnson is Executive Vice-President for industrial and military design; Irv Mendenhall, as President, remains in charge of financial planning and certain external relationships.

• **Daniel**—Phil Daniel, in charge of business development more than any of the principals, is concerned with making the contacts that bring in new business.

The firm's goals are developed sometimes from a five year plan hammered out by the partners meeting together. But sometimes goals are developed more by intuition than by careful planning. This is where Daniel feels he makes the greatest contribution to the firm. It is at his insistence, for example, that DMJM is now geared to serve the European common market area, prepared to design American-type factories for Europeans.

After receiving his architectural de-

DMJM's Code of Partnership Ethics

1. Acceptance by each member of the management of this firm of his pro rata share of responsibility for the getting of the business and the handling of it.

2. Willingness on the part of each member of the management to assist each of the other members in the discharge of his responsibilities.

3. Desire on the part of each member to build up and extend the influence of the other members.

4. Unwillingness on the part of all members ever to speak disparagingly of another member to anyone.

5. Unwillingness on the part of any member to profit at the expense or embarrassment of any of the other members.

6. Willingness on the part of all members to face all firm problems objectively and dispassionately.

7. Unwillingness of all members ever to take an arbitrary position about anything.

8. Avoidance of destructive criticism.

9. Substitution of constructive suggestion.

10. Willingness on the part of each member, either to sell his ideas or to accede to the judgment of the other members of this management.

11. Acceptance by each Partner of his responsibility to protect the interests of other Partners when delegated the authority and responsibility to act for the other Partners.

Irv Mendenhall

Stanley A. Moe

gree from the University of Southern California, Daniel went to work in 1938 for Louis N. Crawford, an architect in Santa Maria. In 1940 the firm became Crawford and Daniel. (The partnership came as a wedding present when Daniel married Irv Mendenhall's sister—Mendenhall at the time was still at the University of California.)

• **Mann**—As chairman of the partnership, Art Mann prepares agendas, calls meetings and presides at the partnership sessions. Such formalities among old friends expedites the work. "Informal meetings drag out too long," Mann says.

But Art Mann's contribution is more than formalizing their business relationships: Not as volatile as the others, he is generally the last to jump into an argument; frequently, he's the mediator. He stabilizes the human relations among the partners, helps keep these intense individuals working together.

A native of Glasgow, Scotland, Mann came to the U. S. as a youth and got his architectural training through the apprenticeship route. He met Phil Daniel early in World War II while both were working on the design of the Kaiser Steel plant in Fontana. They became fast friends, and the natural move was to go into business together.

Mann is in charge of architectural design on schools and institutions. This work is the effort that started the partnership in 1946.

• **Johnson**—It was Ken Johnson who made the initial draft of the Code of Partnership Ethics many years ago.

He is the partnership's "bug" on good plans and specifications. In the early years, 90% of the firm's business was on public works. The bidding process in public works requires complete plans and specifications—change orders cost money that public works managers can see. Johnson attempts to carry the need for complete plans and specifications over into work for private clients. Here construction often proceeds at the same time as design; and cost of the resulting design changes are covered in a negotiated or cost-plus job.

Johnson is an advocate of the total design office where all phases of the work are done in one place. Efficiency is built in, he says, because everyone knows what everybody else is doing.

Johnson was a classmate of Phil Daniel at USC. Over seven and a half years at USC, he earned degrees in architecture and civil engineering, worked as a movie-studio set designer.

After graduation, Johnson worked for the National Park Service and as a project architect on the design of a spectacular all-glass exterior ordnance building at the San Francisco Naval Shipyard before being invited to join classmate Daniel's new firm.

It was Johnson who first suggested a "branch" office in Los Angeles.

• **Mendenhall**—As managing partner of the organization Irv Mendenhall is in charge of financing and relationships with other firms. And as the only engineer among the partners, he is in charge of all engineering efforts.

Mendenhall served in the Seabees during World War II shortly after graduation from the University of California. After service he went into business as an engineer in his hometown, Santa Maria. Among other things he did small municipal projects for Santa Maria and surrounding communities. Mendenhall also did structural design work for the young architectural firm of Daniel, Mann and Johnson. This association developed into a partnership shortly before the Korean War.

From this small engineering seed grew such things as DMJM's recent participation in design of the multi-million-dollar Los Angeles sewage works program that centered around modification of the Hyperion treatment plant. And it led to one of DMJM's big cur-

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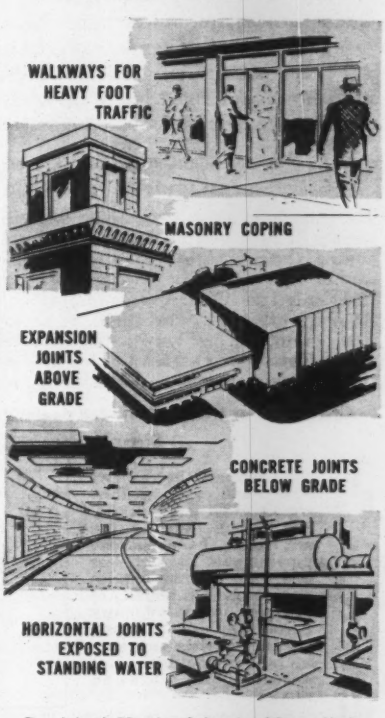
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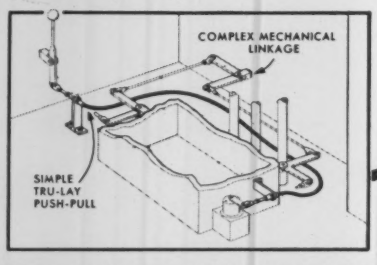

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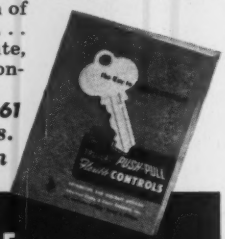

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rent jobs as consultant to the Los Angeles Metropolitan Transit Authority in developing plans for rapid transit. LAMTA has no engineering staff of its own, thus DMJM is in effect a staff.

• **Moe**–Stan Moe, the fifth partner, has the title of general manager. As such he is in charge of all the architect-engineer operations both for domestic and overseas work.

It was through overseas efforts that Moe was brought into the firm. Moe, a graduate of the University of Minnesota, had his own architectural practice in the San Fernando Valley. In 1952 he joined DMJM to head an architect-engineer staff in Tokyo serving the Far East Air Force. He has long been interested in overseas work. Other early overseas assignments include work in the Middle East and a tour of duty as a civilian attached to the Corps of Engineers in Africa. From Tokyo, Moe went to England to administer an Air Force design program for DMJM. These two assignments were so successfully handled that, in 1955, he was made a partner.

Two Tulsa Firms Merge; W. Holway Heads Group

W. R. Holway & Associates, Tulsa's oldest engineering firm, and Cornett, Wood & Associates, also of Tulsa, have merged to form Holway Engineers, Inc. The new company will specialize in consultant work in sanitary, structural, hydraulic, mechanical and electrical engineering. W. R. Holway heads the firm. Mr. Holoway, who established Tulsa's first engineering firm in 1920, is the designer of the Tulsa water supply system. His firm did consultant work on a water supply system for Russia in 1929 and also for Cuba.

Cornett, Wood and Associates was formed in 1954 and did work in sanitary and structural engineering.

The firm designed the highway bridge across the Oologah reservoir spillway and the $5 million outlet works at Oologah dam.

Utah Names C. T. Burton To Head Road Commission

C. Taylor Burton is Utah's new highway director. He has served for the past three years as acting director of a five-man highway road commission.

Mr. Burton, a graduate engineer, operates a home building firm. He has served as president of the Utah Home Builders Association and has been a regional vice president of the National Home Builders Association.

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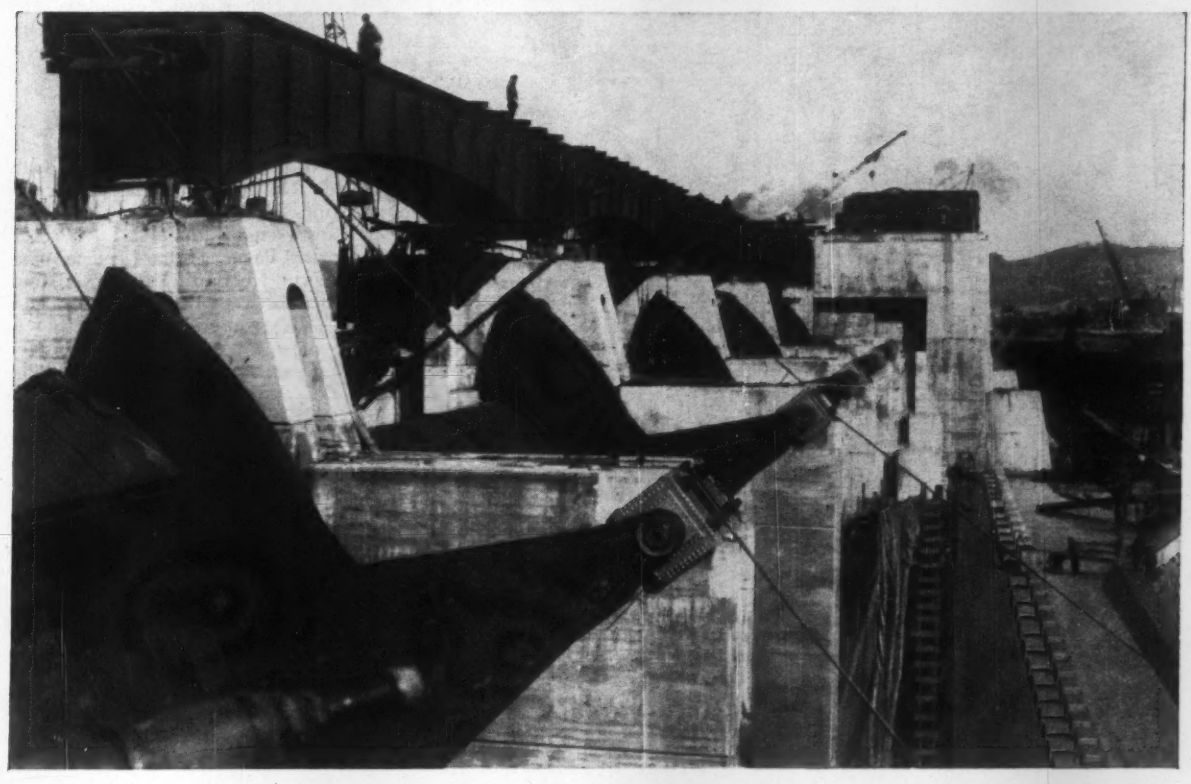

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. . . Men and Jobs

Business

George R. Brown, executive vice president of Brown & Root, Inc., has been elected to the board of directors of Lone Star Steel Co., Dallas. He is also president and director of Joe D. Hughes, Inc., and a director of the International Telephone and Telegraph Corp. Mr. Brown is a graduate of Rice Institute and Colorado School of Mines, where he received his degree in mining engineering.

Howard Payne, assistant general manager of construction for Brown & Root, Inc., has been promoted to vice president. He came to Brown & Root in 1937 and has been active in their overseas operations, particularly the Artibonite Valley project in Haiti, where he was general superintendent.

Edward X. Tuttle, Sr., joins the New York office of Charles Luckman Associates as vice president. He has been vice president at Giffels & Vallet, Inc., Detroit, where he worked for 18 years. Before that, Mr. Tuttle held a similar position with Turner Construction Co., New York City.

Francis W. Holbrook has been named executive engineer of Western-Knapp Engineering Co. in the company's Chicago office. Before coming to Western-Knapp, he was manager of sales and marketing for the Kropp Forge Co., Chicago.

Arthur H. Hoag, Jr., has become a partner in the Cleveland engineering and architectural firm of McGeorge-Hargett & Associates.

Thomas J Powers, supervisor of waste control for the Midland Division of the Dow Chemical Co., has been named head of the consulting section of Dow Industrial Service, the company's newest division. Mr. Powers, who has been active in the field of waste and water treatment, has also served on the water pollution control advisory board of the Public Health Service. He joined Dow in 1926 after five years with the Michigan Water Resources Commission.

Walter A. Gardner has joined Harrison Engineer Co., Gastonia, N. C., as vice president in charge of engineering. Since 1954 he had been with the city water and sewer department.

Joe W. Hoffman is district sales engineer in the Kansas City office for the Granco Steel Products Co., St. Louis. Before joining Granco Mr. Hoffman was an engineer for the Missouri State Highway Department.

F. R. Amthor joins Hamilton Manufacturing Co., Two Rivers, Wis., as engineering vice president. He has been serving in the same position with Portable Electric Tools, Chicago.

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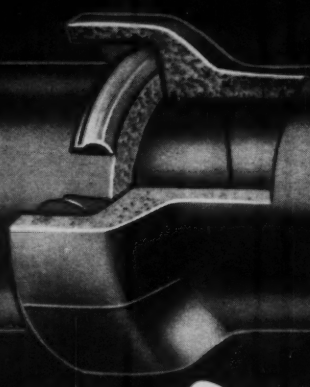

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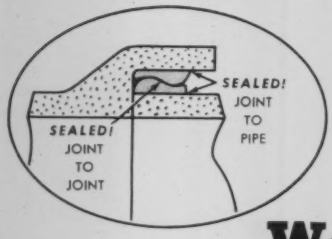

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Obituaries

S. W. Spielvogel, 67, staff engineer for Byrne Associates, New York City consulting engineers. Mr. Spielvogel, an authority on piping stresses, is the author of a handbook, "Piping Stress Calculations Simplified." A native of Vienna, Mr. Spielvogel received a civil engineering degree in 1919 from the Technical University there. Before his association with Bryne Associates, he was with the Consolidated Edison Co. of New York for 32 years. He also served as an adjunct professor at New York's City College where he prepared an advanced course on pipe stress.

John Ernest Bing, 44, engineer with Robert & Co. Associates of Atlanta. Before joining the company in 1951, he was division construction engineer for the Texas Co. in Atlanta. He graduated from North Carolina State College.

Lewis E. Whitfield, 69, retired division engineer of the North Carolina Highway Department. Mr. Whitfield, who was with the state government since 1918, was a native of Clinton, N. C., and an engineering graduate of the University of North Carolina. He had been associated with the William Pitt Co., Sampson County, N. C. before joining the highway department.

George A. Sutherland, 61, vice president of the Sollitt Co. Inc., South Bend, Ind. During his 22 years with the company, he directed the construction of 20 large steam-electric generating power projects. In the 1930's he was chief engineer for the U. S. Department of Agriculture.

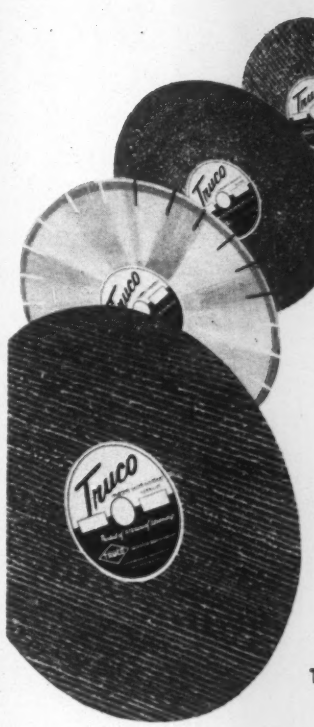
A. Walter Pfost, 67, a civilian employee of the Army Engineers. He was assistant chief of the organization and training branch and deputy coordinator for disaster control in the North Atlantic division. Before joining the Army Engineers in 1942, Mr. Pfost operated his own construction business.

Clarence H. Wetter, 86, retired manager of the Tiffin, Ohio, waterworks.

Gerhard J. Hoerbelt Sr., 69, retired sewer maintenance engineer for Akron, Ohio. He had also been civil engineer for Buffalo before coming to Akron.

Ben C. Rich, 85, civil engineer who directed the location of railroads and ship canals in the Indiana Harbor section of East Chicago in the early 1900s.

William A. Schunk, 83, former director of public works for Scranton, Pa.



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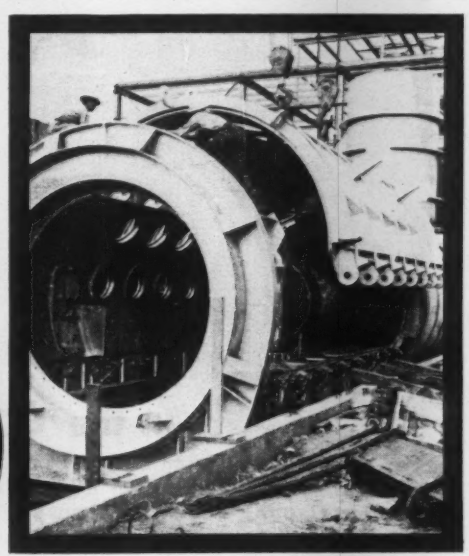

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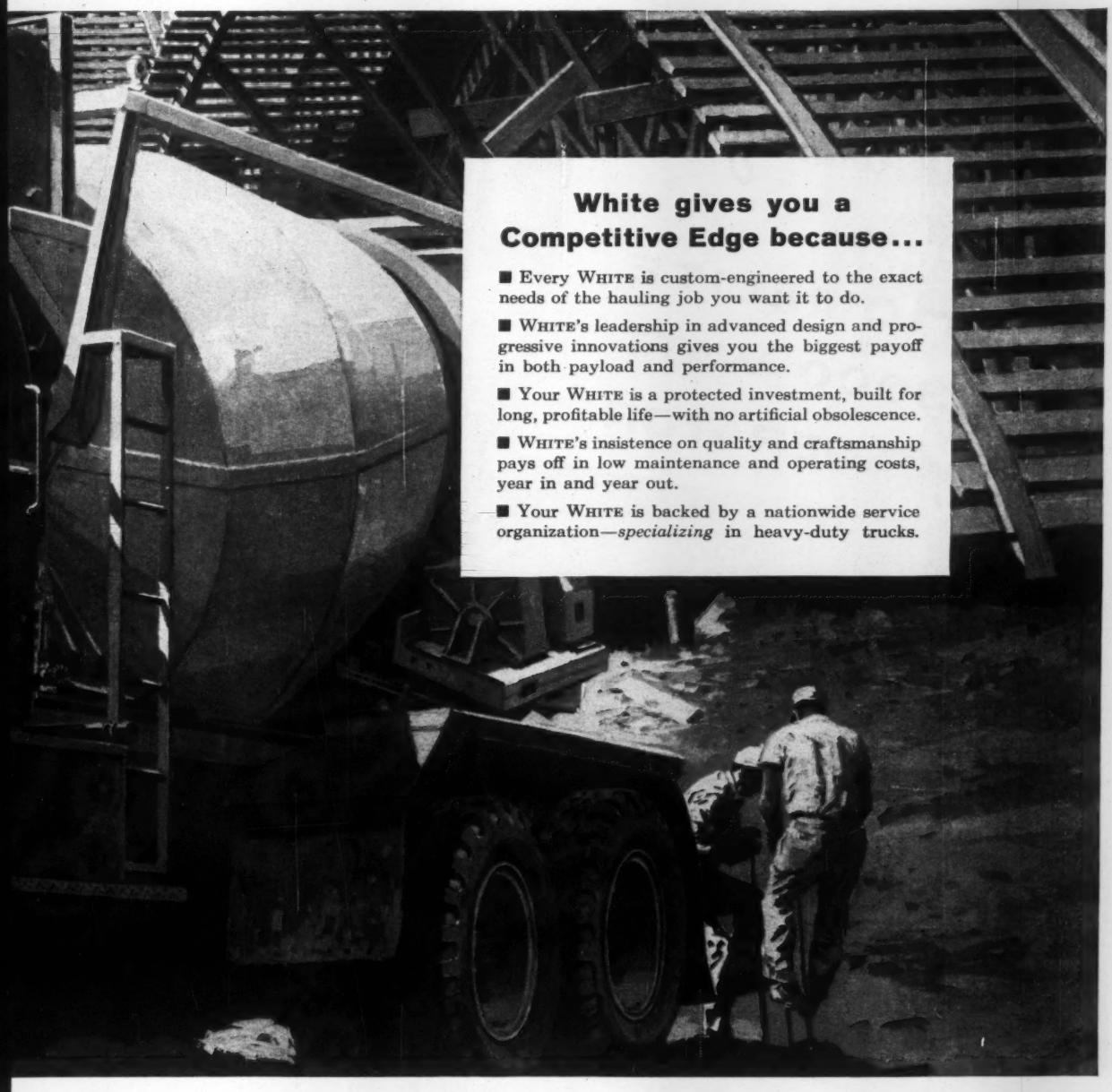

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We put it squarely up to builders and contractors all over the country. Homelite engineers wanted to know what you need in a lightweight gasoline engine driven generator. And here's the Homelite solution . . . a brand-new unit that weighs only 140 pounds and gives you full 3000 watts. It has the extra power to run extra tools and floodlights. And you don't have to operate rheostats or other controls. The voltage is automatically controlled within four per cent from no load to full load. This new Homelite model 8A is completely free from trouble makers. No DC brushes. No commutator. No DC windings on armature. See it in action, right away. Two models are available . . . 115 volt and 115/230 volt, both 60 cycle, AC.

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CARRYABLE
GENERATORS PUMPS • CHAIN SAWS BLOWERS

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Pool-Bathhouse Bids Close

At a cost of $323,437, the existing swimming pool in Marquette Park, St. Louis, Mo., will be replaced by a concrete pool, and the adjoining bathhouse (constructed in 1919) will be rehabilitated, requiring shoring and extensive repairs. Tom Purcell, Department of Parks, Recreation & Forestry, is the City's coordinator for the project. Mrs. Edw. Brungard is Director of the department. Pearce and Pearce, Inc., St. Louis, are the architect-engineers. Consultants for the mechanical work are Smith-Hanlon-Zurheide-Levy, Inc., and for the structural work, Leslie J. Bergmeier, both of St. Louis.

The Board of Public Service awarded the contract to Lecoutour Construction Co., St. Louis, on a low bid less than 1% under the architect-engineer's estimate, only $69 under the second low bid, and less than 5% under the next two bids. Frank Kriz is President of the Board of Public Service.

The L-shaped pool will be 165x42 ft on the long side, to provide a large swimming area for meets and other programs. The base of the L is 88x60 ft. Underwater and flood lighting will be provided for night activities. A new pumphouse for water and filtering systems is included.

Minimum wages include: carpenter, $3.725; cement finisher, $3.975; concrete worker, $2.775; crane & power shovel operators, $3.825; common laborer, $2.775.

1C	Lecoutour Constr. Co., St. Louis	$323,437
2	Karl Kraus Constr. Co., St. Louis	323,506
8	Geo. Moeller, St. Louis	374,950
EE	Pearce & Pearce, Inc., St. Louis	325,680

Bid: 11-10-59 Items	% of Contract	Lump Sum Prices 1C	 2
Wreck& remov existing work	3.10	$10,000	$7,200
Excavate & fill	5.56	18,000	11,000
Conc work, bathhouse, inside	3.10	10,000	1,840
outside	14.84	48,000	68,192
piers, drilled & cast in pl	0.77	2,500	3,608
Cement work, bathhouse, inside	1.86	6,000	6,335
outside	6.80	22,000	12,600
Masonry work	7.42	24,000	20,000
Structural steel & ironwork	1.86	6,000	4,400
Tuckpoint & clean bathhouse	1.86	6,000	6,815
Misc iron & steel work	1.24	4,000	4,945
Pcst conc roof slabs	0.62	2,000	1,789
Roofing & insulation	0.31	1,000	925.00
Sheet metal work	0.46	1,500	2,000
Carpentry work & hardware	4.77	15,437	9,200
Hollow metal work	0.31	1,000	1,171
Lath & plastering	1.24	4,000	5,370
Painting	1.55	5,000	5,266
Tile work	0.31	1,000	937.00
Glass & glazing	0.31	1,000	985.00
Pool accessories	1.39	4,500	4,768
Misc items	4.33	14,000	16,625
Macadam paving	0.62	2,000	2,552
Electrical work, bathhse, inside	1.70	5,500	5,493
outside	9.58	31,000	36,630
Plumbing, bathhouse	6.80	22,000	23,500
swimming pool, incl sewerage, drainage, pool & filter plant piping	17.29	56,000	59,360
Supplemental: per lin ft of 18" pier added	.....	1.00	1.20
deducted	.....	0.60	1.00

Commence: 12-15-59. Complete: 210 days.
Liquidated damages: 35/day

Steel Sheet Piling Half of Harbor Cost

Steel sheet piling, 16,884 lin ft at $4 a ft and 768 lin ft at $6, accounts for almost 50% of this $148,192 contract for construction of a 325 ft wide, 800 ft long and 10 ft deep deep small boat harbor in Lake Superior at Bayfield, Wis. This is one of a series of harbors of refuge for cruising pleasure craft, built along the shores of the Lake at intervals of approximately 35 miles.

The award by the Corps of Engineers, St. Paul, Minn., to Zenith Dredge Co., Duluth, Minn., was 19% under the engineer's estimate.

Work includes dredging a harbor basin; placing a timber parapet wall over existing city pier "L" and breakwater, on the north and south ends of the harbor; and extending the breakwater 103 ft on the south end with steel sheet pile ells filled with sand and covered with 2 ft of rock, filled with concrete.

Minimum wages include: carpenter on waterfront work, $3.33; structural ironworker, $3.52; general laborer, $2.48. On dipper and hydraulic dredges, wages include: operators, $3.565; cranesmen & pipeline men, $3.3025; firemen, oilers, $3,04375.

1C	Zenith Dredge Co., Duluth	$148,152
2	James F. Richards Constr. Co., Minneapolis	165,397
8	Durocher Van Antwerp & Beatty, Inc., Cheboygan, Mich	242,886
EE	Corps of Engineers, St. Paul	183,418

Bids: 11-4-59 Items	Unit	Quantity	Unit Prices 1C	 2
Steel sheet piling, SA-23	lf	16,884	$4.00	$4.55
Z-27	lf	768	6.00	6.40
tee piles, TA-28	ea	4	325.00	600.00
TB-28	ea	4	325.00	600.00
TA-29	ea	6	330.00	600.00
TB-29	ea	6	330.00	600.00
Special piles, SP 1	ea	2	355.00	650.00
2	ea	1	355.00	650.00
3	ea	1	380.00	650.00
Ladder	ea	4	60.00	150.00
Sand fill for:				
3 cells & 2 connecting Arcs, north breakwater	ls	job	1,500	1,500
4 cells & 3 connecting Arcs, south breakwater	ls	job	2,100	2,500
Rock for paving on sand fill in cells & Arcs	cy	470	10.50	12.00
Grout fill for stone paving	cy	170	40.00	20.00
Conc navigation light base	ea	2	400.00	750.00
Inspection hole in stn paving	ea	38	51.00	50.00
Rock fill for closures	cy	90	10.50	8.00
Dumped rock along north breakwater	cy	230	10.50	9.00
Timber parapet, incl bolts, plates, spikes, screws, etc	lf	836	20.00	20.00
20' hinged sect of parapet, incl bolts, plates, hinges, wire rope, turnbuckles, etc.	ls	job	1,950	2,000
Dredging	cy	27,700	1.00	1.10

Completion schedule: 300 cal days
Liquidated damages: $75/cal day

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Materials Prices

Monthly Market Quotations by ENR Field Reporters

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS* billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$5.50	$5.30	$5.675	$12.25	.....	$110.50	$130.00	$6.975	$9.75	$6.60	.....
Chicago Area	5.50	5.30	5.675	12.25	$6.50	110.50	130.00	6.975	9.75	6.60	.....
Pittsburgh Area	5.50	5.30	5.675	12.25	6.50	110.50	130.00	6.975	9.75	6.60	$14.75
Buffalo Area	5.50	5.30	5.675	12.25	6.50	110.50	130.00	6.975	9.75	6.60	14.75
Cleveland	.....	.....	5.675	12.25	6.50	.....	.....	.....	.....	.....	14.75
Youngstown Area	.....	.....	5.675	.....	.....	.....	.....	.....	9.75	.....	.....
Geneva	5.50	5.30	.....	.....	.....	.....	.....	.....	.....	.....	.....
Los Angeles	6.20	.....	6.375	.....	6.50	.....	.....	.....	9.75	6.875	.....
Pueblo	.....	.....	.....	.....	.....	.....	.....	69.75	9.75	6.60	.....

* Fairless Works, $5.575.

IRON AND STEEL PRODUCTS—F.O.B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	STRUCTURAL SHAPES Extras, New York:	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Rail steel	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATH Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill
Atlanta	$9.40		8.75	$8.75	$53.00S	$57.00S	
Baltimore	9.70		9.00T	...	44.50	49.00	
Birmingham	9.00ty		8.99ty	8.99ty	61.00p K	67.00p K	
Boston	9.12 K		8.75t	8.75t	49.50 K	54.00 K	
Chicago	9.15s		7.16gu	7.16gu	52.00‡U	63.00‡U	
Cincinnati	9.56akt		9.04t‡	....	44.50 Kg	49.00mn Kg	
Cleveland	8.20st		7.14ct		46.50 KL	51.00 KL	
Dallas	10.45M		9.00	9.00	44.00u	48.50w	
Denver	10.16c K		9.25c	....	63.00n	69.00n	
Detroit	9.25RM		7.37Q	11.85Q	55.00O	63.00O	
Kansas City	9.82sT		8.10N	.....	49.00	60.00	
Los Angeles	8.90dkt		7.35frt	....	55.00S	64.00S	
Minneapolis			9.26T	9.26T	44.50 K	49.00 K	
Montreal	7.90–8.60iCF/8.20–8.90AiF		7.00/7.50FGi	7.00/7.50FGi	65.70‡	70.90‡	
New Orleans			8.00gktz	....	48.50 K	53.50 K	
New York	9.84‡s		8.60r	8.80r	52.00n	59.00n	
Philadelphia	9.10buy		8.23 y	8.23y	44.50 U	55.20‡U	
Pittsburgh	9.00y		7.35y		58.50‡rw	64.50‡rw	
St. Louis	9.12dtz		7.75‡tzQ	7.75‡tzQ	61.00wz K	62.00wz K	
San Francisco	10.80aS		9.85jS	....	53.00S	58.00S	
Seattle	10.20aD		8.85DM	...	67.00‡nD	73.50‡nD	
Toronto	9.20H		7.85	7.85	44.00qqJ	49.50qJ	

EXTRAS, per cwt—Quantity (applies to LCL shipments only): under 1,000#, +$1.50; 1000–1999#, +$1.30; 2000–4999#, +$1.20; 5000–9999#, +90¢; 10,000–19,999#, +70¢; 20,000–29,999#, +50¢; 30,000–39,999#, +40¢; 40,000 & up, none. ●Size†: #2 & #3, +$1.40; #4 +$1.00; #5 +70¢; #6, #7, #8, #9, #10, #11 +50¢. ●Bending: heavy, +90¢; light +$2.20 (except in New York City and surrounding metropolitan area where bending must be done on the job). ●Engineering details and placing from designs but not by others): over 500 tons, +45¢; 200–499 tons, +50¢ $2000; 20–74 tons, +75¢ but not over $975; 5–19 tons, +85¢ but not over $300; under 5 tons, +$1.00 but not over $5. Min. charge $25. Design only: +60¢.

Quantity extras, per cwt: under 100#, +$10; 100–399#, +$7; 400–999#, +4.00; 1000–1999#, +1.25; 2000–4999#, base price; 5000–9999#, −25¢; 10,000–19,999#, −50¢; 20,000–29,999#, −75¢; 30,000# and up, −1.25

	WELDED FABRIC REINFORCING Per 100 sq ft., carload lots fob mill
4 × 18 in., No. 5 & 10 wires — Joliet, Ill.; Donora, Pa., Monessen, Pa.	$7.04
4 × 12 in., No. 8 & 12 wires — Joliet, Ill.; Donora, Pa., Monessen, Pa.	$3.62
in., No. 6 & 6 wires — Joliet, Ill., Donora, Pa., Monessen, Pa.	$4.17

●‡ Delivered ●* Aver. of Canadian & American ●# add 4% sales tax ●a 2000–4999# ●b 10,000–19,999#, fob city ●c 20 tons or over ●d 10,000–29,999# ●e Intermediate struct'l ●f Incl. delivery in free zone ●g CL ●h list price; dominion tax exempt; add provincial and municipal taxes ●i add orovincial and municipal sales taxes ●I intermediate and hard grade ●k fob city ●l delivered; contractor to do unloading ●m copper alloy ●n LCL ●o asphalt coated ●p 500 sq. yd. or more. ●q 2.5 lb ●r less 2% disc. for cash ●s 2,000–4,999# ●t less ½% disc. 10 days ●u add 10¢ switch ●v incl 15¢ del. ●w truck lots. ●x add 2% sales tax ●y add 15¢ del. ●z add 10¢ del. ●A American made. ●C Canadian made. ●D ½% for cash. ●E 30,000# or over. ●F Federal tax exempt for bldgs. ●G add 10¢ del. ●H 8.85 without tariff charges. ●I 3 lb $60.00. ●J 4 lb $47.50. ●K less 2% disc. 10 days ●L F.o.b. Youngstown plant ●M 5,000–9,999# ●N 2,000–19,999# ●O 100 sy lots ●Q 5 tons to CL ●R: revised ●S less 2% disc. 10th ●T less ½% disc, 10th of mo. ●U less 2% disc 10 days

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEXa	ASBESTOS CEMENT PIPE Z per lin. ft. 6' Press Cl. 150	ASBESTOS CEMENT PIPE Z per lin. ft. 12' Sew Cl. 1500	CLAY SEWER PIPE Per ft., delivered, car load ASTMC 13-55 8 in.	CLAY SEWER PIPE Per ft., delivered, car load ASTMC 13-55 12 in.	CLAY SEWER PIPE Per ft., delivered, car load ASTMC 200-55T 24 in.	CLAY SEWER PIPE Per ft., delivered, car load ASTMC 200-55T 36 in.	CLAY DRAIN TILE† Per 1,000 ft., car load lots, f.o.b. ASTMC 4-55 6 in.	CLAY DRAIN TILE† Per 1,000 ft., car load lots, f.o.b. ASTMC 4-55 8 in.	CONCRETE SEWER PIPEb Per ft., delivered ASTMC 14-55 12 in.	CONCRETE SEWER PIPEb Per ft., delivered ASTMC 14-55 24 in.
Atlanta	130.5	$1.61/1.69	$2.36/2.48	$0.55r	$1.00r	$4.50r	$12.50r	$209.00nr	$334.00r	$0.95mKr	$3.75mKr
Baltimore	140.1	1.61/1.69	2.19/2.30	.665	1.20	3.05	12.71	187.80	289.20	1.01	2.75
Birmingham	125.8	1.61/1.69	2.26/2.37	.50r	.95r	4.14rw	13.50rw	295.00rz	430.00rz	1.25rS	2.75rS
Boston	143.1	1.63/1.71	2.19/2.30	.784qrtL	1.512qrtL	6.255qrtM	.....	215.40r	330.60r	1.56S	3.47S
Chicago	139.8	1.61/1.69	2.19/2.30	.93rm	1.78rm	7.52rm	21.16rm	220.00Br	330.00Br	1.30	4.00
Cincinnati	135.5	1.63/1.71	2.19/2.30	.616rt	1.188rt	4.725rt	12.40r	270.00r	400.00r	.85rAB	3.25rAB
Cleveland	141.7	1.63/1.71	2.19/2.30	.69BCN	1.32tBC	5.13tBC	13.33tBC	155.40mBC	240.60mBC	1.35	3.60P
Dallas	137.8	1.63/1.71	2.26/2.37	.550‡B	.96‡B	4.40‡B	9.75‡bB	.....	.....	1.25BD	2.85BD
Denver	144.9	1.71/1.80	2.36/2.48	.56nr	1.00nr	4.98r	.....	460.00nr	640.00nr	1.05m	3.50m
Detroit	142.1	1.61/1.71	2.19/2.30	.97nk	1.86nk	7.48nk	19.95nk	172.00mk	286.00mk	1.40k	5.23k
Kansas City	138.5	1.61/1.71	2.26/2.37	.62r	1.125r	6.324br	16.86r	315.00r	625.00r	1.60r	3.55r
Los Angeles	148.6	1.70/1.79	2.19/2.30	.82bl	1.79blS	7.19blS	16.90blS	410.00lS	590.00lS	1.24rE	3.66frE
Minneapolis	144.8	1.67/1.75	2.26/2.37	.96oB	1.73oB	7.50oB	.....	.....	.....	2.19DFH	6.31DFH
Montreal				1.13u	2.00u	7.00u	13.50u	288.00	545.00	1.17D	3.11tpD
New Orleans	132.3	1.61/1.69	2.26/2.37	.566r	1.078r	5.65r	.....	240.50pr	490.00	1.41ilR	3.76il
New York	138.5	1.63/1.71	2.19/2.30	.85	1.63R	10.73	28.90	240.81	369.84	1.50‡B	3.60‡B
Philadelphia	137.8	1.61/1.69	2.19/2.30	.72‡	1.40‡	9.02‡s	24.68‡s	220.00‡	330.00‡	1.50‡h	4.00‡h
Pittsburgh	142.9	1.63/1.71	2.19/2.30	.94K	2.01K	8.79K	24.15K	190.00	295.00	1.66DE	3.93DB
St. Louis	136.9	1.61/1.69	2.26/2.37	.65r	1.27r	5.10r	12.95rS	200.00r	350.00r	1.75i	4.05
San Francisco	148.6	1.70/1.79	2.19/2.30	.80‡d	1.86‡d	7.53‡d	18.00‡d	360.00‡l	620.00‡l	1.05‡Q	3.30‡Q
Seattle	149.0	1.71/1.80	2.19/2.30	.85bk	1.83kb	7.61k	.....	254.00ck	.....	1.95bky	4.55bky
Toronto				.80F	1.50F	6.00F	.....	185.00F	305.00F	1.05F	5.19F

	*WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnote							
		3½ to 6 in. Lap Weld* Galv. %	3½ to 6 in. Lap Weld* Black %	3½ & 3 in. Butt Weld* Galv. %	3½ & 3 in. Butt Weld* Black %			
● Mill								
Lorain, Ohio		+19.75/	+2.00/	+3.50	+3.50	13.75	13.75	+2.50
Alquippa, a		+14.50a	3.25a	+3.50	+3.50	13.75	13.75	+3.50
Sparrows P., Md.		+1.00	.....	+1.00	+1.00	17.25	13.75	+3.50
Benwood, W. Va.		+14.50a	3.25	+3.50	+3.50	13.75	13.75	+2.50
Youngstown, O.		+15.50a	2.25ab	+3.50	+3.50	13.75	13.75	+3.50
Indiana Harbor, Ind.		+4.50	3.25ab	+4.50	+4.50	12.75	13.75	+3.50
Sharon, Pa.		+14.50a	3.25ab	+3.50	+3.50	13.75	13.75	+2.50
Wheatland, Pa.		+14.50a	3.25a	+3.50	+3.50	13.75	13.75	+3.50
Etna, Pa.		+26.50bb	50de	+15.500	+15.500	0.75	13.75	+3.50
Fontana, Calif.		+9.75ab	+9.75ab	.....	.....	.....	.....	.....

b Continuous c Seamless
● Threaded and coupled. a 3½ to 4 in. weld. c: to 1 5 and 6 in. d 6 in. e 2½ in. 50½¢; 3 in., 78½¢. f 5 in.

●† Extra quality. ●‡ delivered. ●# add 4% sales tax ●a PRICE INDEXES for CENTRIFUGAL CAST IRON PIPE (Include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE $ PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 125.8; Burlington, N. J., 134.6. For explanation of index see ENR Sept. 29, 1955 page 139. ●b Extra strength. ●c 4-in., $130. ●d SS361-A. ●f 21 in. ●g culvert pipe; reinf., ASTM C 75-56. ●h reinf., ASTM C 75-54. ●i reinf., ASTM C 76-55. ●j centrispun. ●k less 2% disc. for cash. ●l fob plant. ●m truck del. ●n LCL del., fob truck. ●p less 5% disc. 10th. ●p freight allowed to destination in city. ●u 35,000# minimum. ●r less 2% disc. 10 days. ●s 1 ft lengths. ●u CSA A 60. ●v standard strength. ●w SS: add 20% for d.s. ●x fob city. ●y Reinforced. ●z Upper value in range based on both truck lots and less than truck lots, fob city; lower value truck lots delivered. ●A single strength. ●B truckload. ●C less 2% disc. 15th. ●D ASTM 76-57. ●E less 1% disc. 10 days. ●F less 2% disc. 30 days. ●G LCL ●H CL. ●I fob origin, freight allowed. ●J reinf. B14-15. ●K Less 2% disc. 15 days. ●L ASTM 13-57. ●M ASTM 200-57. ●N 2 ft lengths. Trucklots. ●O add 2% Sales Tax. ●P 18 in. ●Q less 1% disc. 10th. ●S ASTMC 72, 12" 1.55, 24" 4.00.

● **WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft.("based on approx. $200 per net ton): Butt Weld ⅛ in., 8½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., ¢; 2½ in., 38½¢; 3 in., 78½¢. Lap Weld 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. continuous weld same as lap weld prices Add freight, 3% transport tax for destination price. † Production discontinued November 1957**

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 65.54, galv., + 95.77; 1¼ in. black, + 65.54, galv. + 95.23, 1½ in. black, + 61.79 galv. + 91.22; Lap Weld —2½ in. to 3 in. black + 67.95 galv. + 95 77; 4½ in. to 6 in. black + 84.74 galv. + 90.88 Add freight rates plus 3% transportation tax to get destination price.

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, Jan. 21; Next, Feb. 18
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Jan. 28; Next, Feb. 25
- Wage Rates, Building Board, Lath, Insulation: Last, Jan. 28; Next, Mar. 3
- Cement, Aggregate, Ready Mixed Concrete, Asphalt: Last, Feb. 4; Next, Mar. 10

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

▲ **Conn., Hartford**—BA 2/18—Metropolitan Dist., Bd. Contract & Supply, 115 Broad St., Contr. 429, 48 in. transmission main Cherry Brook to Reservoir 6, Section 1, from Canton to Avon, 3⅝ mi. prestressed concrete embedded cylinder pipe along Rte. 44 from Inter. Rte. 179 to Inter. Rte. 167, Avon, Canton, etc. $1,300,000. Plans deposit $10. CD 10/6/58.

BUILDINGS—BA

▲ **Mass., Webster**—SCHOOL—BA 2/29—Town, Negus St., Intermediate School, Park Ave. $1,164,000. Plans deposit $50. Domian & Salk, 340 Main St., Worcester, archts. CD 8/12.

▲ **Mass., Randolph**—SCHOOL—BA 3/2—Town, Memorial Parkway, Junior High School, High St., North Randolph. $1,000,000. Plans deposit $50. Stoner Assoc., 118 Newbury St., Boston, archts. CD 4/15.

HEAVY CONSTRUCTION—LB & CA

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
J. F. Fitzgerald Constr. Co., 100 Turnpike St., Canton, Mass., CA **$1,916,782**, est. $2,025,871, wid'n. section Rte. 128, U-272(40), Reading-Wakefield. Bids Jan. 12, awarded Jan. 27. CD 1/15, under LB.

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,
Harris Structural Steel Co., 419 Fourth Ave., New York, N. Y., CA **$1,320,800**, est. $1,400,000, furnish, fabricate and erect structural steel for bridge at Interstate Rte. 495, FA No. 1-495-6(17)81, Lawrence. Bids Jan. 5, awarded Jan. 27. CD 1/7, under LB.

▲† **Fontaine Bros., Inc.**, 40 Hendricks St., Chicopee Falls, Mass., CA **$1,078,810**, est. $1,020,000, Base Bid, Air National Guard facilities, Barnes Airport, ENG-19-016,60-20, WESTFIELD, MASS. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids Dec. 30, awarded Jan. 28. CD 1/4, under LB.

BUILDINGS—LB & CA

▲ **Concrete Constr. Co.**, 165 Chelsea St., Everett, Mass., CA **$1,368,150**, incl. alternates, Lynn 667-3A & 667-38, HOUSING FOR THE ELDERLY, Magnolia and Woodward Sts., LYNN, MASS. City, Redevelopment Auth., 455 Garfield Ave., Lynn, Mass. Bids Dec. 17. CD 12/23, under LB.

▲ **Irving Sherman**, 390 Stafford Ave., Bristol, Conn., Owner Builds, **$5,000,000**, 500 HOUSES, Witches Rock Rd., BRISTOL, CONN.

▲ **William D. White**, Girard Ave., Farmington, Conn., Owner Builds, **$1,400,000**, 100 HOUSES, MARLBOROUGH, CONN. CD 7/6.

▲ **Dover Park**, Mile Lane, Middletown, Conn., Owner Builds, **$1,000,000**, 100 HOUSES "Dover Park," Mile Lane, 7 streets, MIDDLETOWN, CONN.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **N. J., Hanover**—BA 2/24—Hanover Sewerage Auth., Whippany, Contr. No. 1, plant; Contr. No. 1A, electrical work; Contr. No. 2, interceptors; Contr. No. 3, laterals, Hanover Twp. $2,060,000. Elson T. Killam Asso., Inc., 48 Essex St., Millburn, engr. CD 8/30/57.

BUILDINGS—BA

▲ **N. Y., New York**—POLICE ACADEMY—BA 2/17—Dpt. P. Wks., Rm. 2200, Municipal Bldg., Zone 7, general contract, plumbing work, heating and ventilating and air conditioning, electrical work new Police Academy and replacement for 13th and 15th Precincts located at E. 20th and E. 21st Sts. between 2nd and 3rd Aves., Manhattan Boro. Extended date. Plans deposit $80. CD 1/21.

N. Y., North Merrick—SCHOOL—BA 2/18—Diocesan Bldg. Comn., 253 Sunrise Hy., Rockville Centre, Sacred Heart School. $900,000. Extended date. Ferrenz & Taylor, 1451 Broadway, New York, Zone 36, archts. CD 1/18.

▲ **Pa., Bolivar**—SCHOOL—BA 3/3—Pa. Public School Bldg. Auth., 101 S. 25th St., Harrisburg, school for Laurel Valley Joint School Bd., Project 725-604. $1,500,000. Plans deposit $50. Sorber & Hoone, First National Bank Bldg., Greensburg, archts. CD 10/6/58.

▲ **Pa., University Park**—EDUCATION AND PSYCHOLOGY CENTER—BA 3/9—General State Auth., 18th and Herr Sts., Harrisburg, education and psychology center bldg., horticulture research bldgs., 2 greenhouses, and 1 field service house, Pennsylvania State University. $2,000,000. Plans deposit $75. Thalheimer & Weitz, 1315 Walnut St., Phila., Zone 7, archts. A. F. Jones, c/o owner, ch. engr. CD 8/6/58.

HEAVY CONSTRUCTION—BA

▲ **Karl Koch Erecting Co., Inc.**, 362 Casanova St., New York 59, N. Y., CA **$6,384,000**, Manhattan Bridge imprvs., Contr. No. 10, reconstr. upper deck roadways, repairs to lower deck in connection with conversion of upper roadways to mixed traffic, imprv. bridge approach grades and connections to Lower Manhattan Expressway, NEW YORK, N. Y. Dpt. P. Wks., Rm. 2200, Municipal Bldg., New York 7, N. Y. Bids Jan. 6. CD 1/8, under LB.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton,
Gaskill Constr. Co., Hartford Rd., Riverside, N. J., CA **$1,299,125**, wid'n. and dualization 3.136 mi. Rte. 73, Sect. 2A, from South Branch of Pennsauken Creek to Rte. 38, Burlington and Camden Counties. Bids Jan. 13, awarded Jan. 27. CD 1/15, under LB.

▲† **Security Constr. Co.**, 8903 Allandale Rd., Richmond, Va., CA **$1,080,000**, operations base and air freight passenger terminal, ENG-49-080-60-30-(34), ANDREWS AIR FORCE BASE, MD. U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C. Bids Jan. 7. CD 1/11, under LB.

BUILDINGS—LB & CA

▲† **Malan Constr. Co.**, 2 Park Ave., New York 16, N. Y., LB **$2,690,000** (18 bidders), 1 and 2 story PHYSICS BLDG., Brookhaven National Laboratory, BROOKHAVEN, N. Y. U.S. Atomic Energy Comn., Brookhaven Area, Engineering & Constr. Branch, Bldg. 464, 53 Bell Ave., Brookhaven National Laboratory, Upton 1, N. Y. Bids Jan. 26. CD 12/14.

▲ **J. R. Stevenson Corp.**, 347 Madison Ave., New York 17, N. Y., CA **$1,524,022**, general contract West Gates ELEMENTARY SCHOOL, West Gates Ave. Proj. No. 729; Albany Avenue ELEMENTARY SCHOOL, Proj. No. 730; Harding Avenue ELEMENTARY SCHOOL, Proj. No. 816, LINDENHURST, N. Y. Bd. Educ. Union Federated School Dist. No. 4, Town of Babylon, Lindenhurst High School, 350 Wellwood Ave., Lindenhurst, N. Y. Bids Dec. 22. CD 12/1.

▲ **215 E. 68th St. Corp.** (Owner is Samuel Rudin & Son), 415 Madison Ave., New York 17, N. Y., Owner Builds, **$10,215,000**, 32 story APARTMENT, west side of Second Ave. from East 68th to East 69th Sts., and 275-car garage, NEW YORK, N. Y. CD 12/31.

▲ **Uris Brothers**, 300 Park Ave., New York 22, N. Y., Owner Builds, **$5,000,000**, 20 story OFFICE, 850 Third Ave. between East 51 and East 52nd Sts., NEW YORK, N. Y. Emery Roth & Sons, 400 Park Ave., New York 22, N. Y., archts. CD 1/23/58.

▲ **Howard Siegel**, c/o MarRidge Homes, Golf View Ave., New Brunswick, N. J., Owner Builds, **$1,000,000**, 48 HOUSES, Poole Ave., Raritan Twp., KEANSBURG, N. J.

▲ **Chas. Sigler & Lester Timm**, 100 Francisco Ave., Little Falls, N. J., Owner Builds, **$1,000,000**, 45 HOUSES, Sigtim Dr., LITTLE FALLS, N. J.

▲ **John Fitzgerald**, c/o Roche & Roche, archts., 1079 Rte. 46, Clifton, N. J., Owner Builds, **$1,500,000**, 88 HOUSES, Hillsdale Rd. in Brenton Park, East Brunswick, NEW BRUNSWICK, N. J.

▲ **Jerome Soskin, Willow Bldg. Corp.**, 1777 Monroe Dr., Union, N. J., Owner Builds, **$2,500,000**, 140 HOUSES, Brunswick Ave., East Brunswick, NEW BRUNSWICK, N. J. John P. De Palma, 2165 Morris Ave., Union, N. J., archt.

▲ **Nevis McBride**, 75 Spring St., Paterson, N. J., Owner Builds, **$1,200,000**, 40 HOUSES, High Mountain, NORTH HALEDON, N. J. Tischler & Commero, 195 Broadway, Paterson, N. J., archts.

▲ **Middlesex Associates**, Highway 9, Iselin, N. J., Owner Builds, **$10,000,000**, 1,000 plus HOUSES in Morgan section, off Ernston Rd., SAYREVILLE, N. J.

▲ **Branna Constr. Co.**, Farmers Bank Bldg., Pittsburgh, Pa., CA **$1,803,916**, two 12 story APARTMENTS, 8 Ave. and McClure St., Homestead, PITTSBURGH, PA. Alleghany County Housing Auth., Pittsburgh, Pa. CD 11/15/57.

▲ **Dick Corp.**, Rte. 51, Large, Pa., CA Est **$1,750,000**, 4 story, 320,000 sq. ft., rein.-con. WAREHOUSE, PITTSBURGH, PA. Kaufmann's, Fifth and Smithfield Sts., Pittsburgh, Pa.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; Industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

SOUTH

HEAVY CONSTRUCTION—BA

▲† **Fla., Panama City**—FIELD MAINTENANCE HANGAR—BA 2/24—U. S. Eng., 2301 Grant St., Mobile, Ala., field maintenance hangar with parachute and dinghy shop, Tyndall Air Force Base, near here, ENG-01-076-60-33. Extended date. CD 1/12.

▲† **Va., Chantilly** — TERMINAL — BA 3/1—Federal Aviation Agency, Temporary Bldg. No. 5, Wash., D. C., structural portion Terminal Bldg., Dulles International Airport. Extended date. CD 1/18.

▲† **Tenn., Memphis**—HANGAR, etc.—BA On Or About 3/9—U. S. Eng., 306 Federal Office Bldg., Nashville, Tennessee Air National Guard facilities, incl. (1) A/C Maintenance Hangar, (2) automotive maintenance shop, (3) paint, oxygen and dope storage bldg. (b) new concrete airfield (c) demolition 10 existing bldgs., etc. (d) revised electrical distr. system and utilities (e) site preparation, grading and bit. paving for streets and parking area (f) 3 additive alternate items, incl. 2 access roads and deluge pumphouse with 250,000 gal. storage reservoir, Memphis Municipal Airport, Shelby Co., ENG-40-058-60-2. $1,500,000. CD 4/7.

BUILDINGS—BA

▲ **Miss., Pascagoula** — HOUSING—BA 2/18—Mississippi Regional Housing Auth. No. VIII, 85 dwelling units, one management maintenance bldg. Plans deposit $100. Wm. I. Rosamond & Assocs., Propst Bldg., Columbus, archts.

▲ **N. C., Charlotte**—COUNTY OFFICE—BA 2/24—Bd. Comrs. Mecklenburg Co., Courthouse, 85,000 sq. ft. county office, $1,400,000. Sloan & Wheatley, 1617 E. Boulevard, archts. CD 7/3.

▲† **Tenn., Oak Ridge**—METALS and CERAMIC—BA 2/25—U. S. Atomic Energy Comn., P. O. Box E, metals and ceramic bldg., Oak Ridge Noll Laboratory, X-10 area. Giffels & Rossetti, 243 West Congress St., Detroit, Mich., engrs. and archts. CD 1/6.

BUILDINGS—SLC

▲ **W. Va., Parkersburg**—HOSPITAL—St. Joseph's Hospital, 19th and Murdoch Ave., soon lets contract hospital addn. $3,000,000. C. E. Silling & Assocs., Masonic Bldg., Charleston, Zone 1, archt.

HEAVY CONSTRUCTION—LB & CA

▲ **Cone Bros. Constr. Co.**, P.O. Box 1259, Tampa, Fla., LB **$1,005,614**, sewage treatment plant addn., water distr. lines and sewer lines, SARASOTA, FLA. City, City Hall, Sarasota, Fla. Bids Jan. 25. CD 3/17.

▲ **MISSISSIPPI**—State Hy. Dpt., Jackson, Miss.—**T. L. James & Co., Inc.**, James Bldg., Ruston, La., CA **$2,979,713**, est. $3,745,000, 13.629 mi. incld. grade, drain, b. conc. pavt. Int. Hy. 55 between Tate Panola County Line and town of Hernando. Proj. I-55-4-(18) 257, Hate and DeSoto Counties; CA **$1,068,146**, est. $1,285,000, 7.014 mi. grade, drain, culverts, bridges, base, c. conc. pavt. Miss. Hy. 6 and US Hy. 61, Proj. F-057-1 (2), Coahoma Co.; CA **$348,411**, est. $405,000, 1.309 mi. grade, drain, culverts, base, c. conc. pavt., box bridge US Hy. 78 between Tupelo and Sherman, Proj. F-006-1 (1), Lee Co.;
Miss.—**Cobb Bros. Constr. Co., Inc.**, 315 33 Ave. S., Meridian, Miss., CA **$93,625**, est. $115,000, 4.899 mi. incld. grade, drain, culverts, base and double bit.

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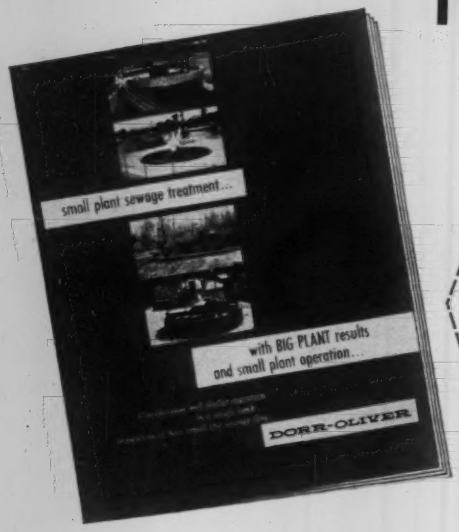

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surf. Miss. Hy. 21 between Sebastopol and Dixon, Proj. S-0435 (6) A, Newton, Neshoba and Scott Counties; CA **$97,591,** est. $120,000, 6.029 mi. incid. grade, drain, base and double bit. surf. treatment Miss. Hy. 503 between Decatur and Hickory, Proj. S-0441 (5) A, Newton Co.;

Miss.—**Bain Constr. Co.,** Grenada, Miss., CA **$194,964,** est. $202,000, 9.714 mi. incid. grade, drain, base and double bit. surf. treatment Miss. Hy. 448 between Benoit and Shaw, Proj. S-0610 (2) A, Bolivar Co.;

Miss.—**Ferguson Bros. Constr. Co.,** Greenwood, Miss., CA **$153,268,** est. $195,000, 9.546 mi. incid. grade, drain base and double bit. surf. treatment Miss. Hy. 407 between Winona and Poplar Creek, Proj. S-0717 (5) A, Montgomery and Carroll Counties;

Miss.—**Boyd Constr. Co.,** Grenada, Miss., CA **$92,316,** est. $120,000, 5.987 mi. incid. grade, drain, base and double bit., surf. treat. Miss. Hy. 315 between Water Valley and Paris. Proj. S-0791 (4) A, Yalobusha and Lafayette Counties. Grand total $5,028,034. Bids Jan. 26. CD 1/15.

BUILDINGS—LB & CA

▲ **Combustion Engineering, Inc.,** 200 Madison Ave., New York, N. Y., CA 500,000 lb. per hour STEAM GENERATING UNIT for plant, COVINGTON, VA. West Virginia Pulp & Paper Mfg. Co., 230 Park Ave., New York 17, N. Y. Gibbs & Hill, Inc., 461 8 Ave., New York, N. Y., engr. CD 11/27.

▲ **Stone & Webster Engineering Corp.,** 1403 Roseneath Rd., Richmond, Va., CA **$32,500,000** design and construct GENERATING and SUB-STATION, Possum Point Power Station, QUANTICO, VA. Virginia Electric & Power Co., 700 E. Franklin St., Richmond, Va.

▲† **Frederick Constr. Co.,** 615 N. Market St., Frederick, Md., LB **$1,147,064** (11 bidders), stone, steel, brick, concrete and block U.S. POST OFFICE and COURTHOUSE, Proj. No. 46906, Contr. No. GS-R3-B-7838, MARTINSBURG, W. VA. General Services Admin., Public Bldg. Service, 19th and F Sts., Wash. 25, D. C. Bids Jan. 26. CD 12/28.

▲ **General Constr. Co.,** P.O. Box 1134, Columbia, S. C., LB **$1,074,932,** 77,000 sq. ft. PHYSICS BLDG., CLEMSON, S. C. Clemson College, Clemson, S. C. Bids Jan. 28. CD 1/4.

▲ **John Crosland Co.,** 122 E. 3 St., Charlotte, N. C., Day Labor, **$2,000,000,** 200 RESIDENCES, DARLINGTON, S. C.

▲ **L. A. Moseley,** N. Pleasantburg Drive, Greenville, S. C., Day Labor, **$1,000,000,** 65 RESIDENCES, Forest Dale Subdivision and S. Forest Estates, GREENVILLE, S. C.

▲ **Beers Constr. Co.,** 70 Ellis St. N.E., Atlanta 3, Ga., LB **$1,249,745,** (3 bidders), SCHOOL of NURSING for Piedmont Hospital, ATLANTA, GA. Piedmont Hospital, 1968 Peachtree N.W., Atlanta 9, Ga. Bids Jan. 28. CD 1/6.

▲ **The Jordan Co.,** 2581 Piedmont Rd. N.E., Atlanta, Ga., LB **$2,184,000,** (3 bidders), APARTMENT, ATLANTA, GA. Valley Park Apartments, c/o Dobbs & Co., Forsyth Bldg., Atlanta, Ga. Bids Jan. 26. CD 1/6.

▲ **Abco Builders, Inc.,** 90 Rogers St. N.E., Atlanta, Ga., LB **$1,356,000,** Briarcliff HIGH SCHOOL addn., DECATUR, GA. DeKalb Co. Bd. Educ., DeKalb Bldg., Decautr, Ga. Bids Jan. 26. CD 1/6.

▲ **Morrison Constr. Co.,** 200 American Bldg., Savannah, Ga., Day Labor, **$1,200,000,** SHOPPING CENTER, Waters Ave. and Intermediate Rd., SAVANNAH, GA. Helfrich & Grantham, 21 E. York St., Savannah, Ga., archts.

▲ **Southwood Corp.,** Comer Bldg., Birmingham, Ala., Owner Builds, **$1,400,000,** 94 HOMES, Old Atlanta Highway, BIRMINGHAM, ALA. Edward J. Bondurant, 2412 Fairway Drive, Birmingham 9, Ala., archt.

▲† **Ingalls Iron Works Co.,** 620 4th Ave. S., Birmingham, Ala., CA **$4,680,085,** structural steel for Paradise Steam Plant, Green River, PARADISE, KY. Tennessee Valley Authority, New Sprankles Bldg., Knoxville, Tenn. CD 10/6:
Glazer Steel Corp., 1556 Tchouptulas St., New Orleans, La., CA **$218,820** steel reinforcing bars, Paradise Steam Plant (Paradise, Ky.).

▲ **Allan Murphy,** Wilson-Bates Bldg., Nashville, Tenn., CA **$1,000,000,** APARTMENT, NASHVILLE, TENN. Woodlawn Manor, Inc., c/o contractor.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

▲ **Wis., Milwaukee**—BA 2/25—City, City Hall, Howard Ave. Pumping Station. $1,000,000. Plans deposit $25. E. A. Schmidt, c/o owner, city engr. Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 5/12/58.

▲† **Michigan and Ontario**—BA 3/1—U.S. Eng., 1101 Washington Blvd., Detroit, Mich., dredging in Southeast Bend Cut-Off Channel, St. Clair River, Ontario, approx. 30 mi. northeast of Detroit, Mich., CIVENG-20-064-60-36. $9,000,000. CD 1/12.

BUILDINGS—BA

▲ **Ill., Quincy**—HOSPITAL—BA About 3/15—St. Marys Hospital, Vermont St. 200-bed hospital addn. $3,900,000. Hadley & Worthington, Myers Bldg., Springfield, archts. CD 1/28.

HEAVY CONSTRUCTION—LB & CA

▲ **Oakwood Constr. Co.,** 228 N. LaSalle St., Chicago, Ill. CA **$1,124,642,** sanitary sewers for 1000 homes, LaGrange Highland, LAGRANGE, ILL. Village, Village Hall, LaGrange, Ill. Bids Dec. 23, awarded Jan. 15. CD 1/13, under LB.

(Continued on page 70)

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(Continued from page 68)

▲ **Santucci Constr. Co.**, 5115 Church St., Skokie, Ill., CA **$1,998,822**, main sewer in S. Pennsylvania Ave., Oak Creek, MILWAUKEE, WIS. Metropolitan Sewerage Comm. of the County of Milwaukee, P. O. Box 2079, Milwaukee 1, Wis. Bids Dec. 21, awarded Jan. 27. CD 12/28, under LB.

BUILDINGS—LB & CA

▲ **Lester Leist**, 5295 Belclare, Ave., Cincinnati, O., Own Forces, **$2,460,000**, 148 HOUSES, Shady Lane extension, CINCINNATI, O. CD 6/18.

▲ **The Austin Co.**, 16112 Euclid Ave., Cleveland 12, O. CA Est. **$1,000,000**, design and construct 43,000 sq. ft. FREIGHT TERMINAL with garage and office space, Brookpark Rd., CLEVELAND, O. Commercial Motor Freight, Inc., 525 Cleveland St., Columbus, O.

▲ **Bates & Rogers Constr. Corp.**, 600 W. Jackson Blvd., Chicago 6, Ill., CA Over **$30,000,000**, GENERATING STATION, Stateline sta., boiler-turbine-generator, electrical equipment, misc. bldgs., HAMMOND, IND. Commonwealth Edison Co., 72 W. Adams St., Chicago 3, Ill. Bids Jan. 18. Sargent & Lundy, 140 S. Dearborn St., Chicago 3, Ill., engrs.

▲ **Taubman Co.**, 12741 Capital St., Oak Park, Mich., CA Est. **$2,500,000**, 12 story HOTEL, outdoor swimming pool, Washington Blvd. and Michigan Ave., DETROIT, MICH. Charles H. Gershonson, 4800 Greenway St., Detroit, Mich. King & Lewis, 15790 Wyoming St., Detroit, Mich., archts.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲† **Tex., El Paso**—MOTOR PARKS—BA 2/24—U. S. Eng., Box 1538, Albuquerque, N. M., 4 BN motor parks facilities, Fort Bliss, ENG-29-005-60-20B. Extended date. CD 1/12.

▲† **New Mexico**—BA About 3/10—U. S. Eng., P.O. Box 1538, Albuquerque, levee and channel imprvs., Los Lunas Bridge to Belen Bridge, Rio Grande Water Shed, Valencia Co., CIVENG-29-005-60-5. $1,000,000. Plans deposit $5. CD 9/30.

BUILDINGS—BA

▲ **Tex., Fort Worth**—SHOPPING CENTER—BA 2/15—Frank C. Bliss & Co., 711 W. 7th St., 1 story, 115,000 sq. ft. masonry, concrete, steel Eastwood Shopping Center. Over $1,000,000. Plans deposit $25. H. C. Maples, 711 W. 7th St., archt. CD 4/3.

▲† **Mo., Knob Noster**—HOUSING—BA 2/24—Base Procurement Office, Whiteman Air Force Base, 504 units (1 & 2), Capehart Housing, Whiteman Air Force Base. Plans deposit $150. Williamson, Loebsack & Assoc., 2015 Gage Blvd., Topeka, Kan., archts. No. 1 (154 units); Eberle M. Smith & Assoc., 153 E. Elizabeth, Detroit, Mich., archts. No. 2 (350 units). CD 1/27.

BUILDINGS—SLC

▲ **Mo., Affton (St. Louis 23 P.O.)**—WAREHOUSE, etc.—Wohl Shoe Co., Div. Brown Shoe Co., 8300 Maryland Ave., Clayton, Zone 5, soon lets contract 1 story, 550 x 650 ft. open steel curtain walls, steel deck, concrete floors, warehouse incl. parking, railroad spur, Valcour Rd. between Heege and Weber Rds. Over $2,000,000. Neal J. Campbell, 911 Locurt St., St. Louis, Zone 1, consult. engr. for structural and architectural design. CD 1/5.

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., Capitol Approach, St. Paul, Bids opened 1/29,
Industrial Constr. Co., 9216 Grand Ave. S., Minneapolis 20, Minn., LB **$1,407,245**, (11 bidders), Bridge No. 6805 overpass and hy. separation, three railways, 19 tracks, Ramsey Co. CD 1/12.

▲ **MINNESOTA**—State Hy. Dpt., Capitol Approach, St. Paul, Bids opened 1/29,
Minn.—**Woodrich Constr. Co.**, 201 18th Ave. S., Hopkins, Minn., LB **$1,439,044**, (12 bidders), grade, base, concrete pavt. 8.6 mi. between Byron and jct. TH 52 near Rochester, Olmsted Co.; LB **$865,765**, (12 bidders), grade, base and concrete paving 6.2 mi. near Lamoille and in Winona, Winona Co.;
Minn.—**Duininck Bros. & Gilchrist**, Olivia, Minn., LB **$535,237**, (12 bidders), grade, base and road mixed bit. base 14.5 mi. between Belgrade and Paynesville, Kandiyohi and Stearns Counties;
Minn.—**Dependable Surfacing Co.**, 115 7th Ave. S., South St. Paul, Minn., LB **$626,486**, (15 bidders), plant mixed bit. surf. and shouldering grading and stabilization 34.9 mi. Cass and Itasca Counties. CD 1/12.

▲ **TEXAS**—State Hy. Comn., Austin, Bids opened 1/27,
Tex.—**Henry L. Stafford**, Box 1047, Lubbock, Tex: LB **$1,185,590**, lime stab., two course surf., railway overpass 7.699 mi. Hy. Loop 289, Proj. U-1107 (1) UG 1107 (2), Lubbock Co.; LB **$333,538**, flex. base, surf. 15.304 mi. US 380 and ST 83, Proj. F-1022 (9) S-2418 (1), Yoakum Co.;
Tex.—**Heldenfels Bros.**, Box 1917, Corpus Christi, Tex. LB **$1,497,331**, flex. base, A. C. pavement 28.998 mi. Hy. US 77, Proj. F-913 (9) Kenedy Co.;
Tex.—**L. H. Lacy Co.**, 5630 Yale Blvd., Dallas, Tex., LB **$2,289,742**, concrete pavement, flex. base, b. conc. pavement 11.348 mi. Hy, 1 H 45, Proj. I-45-2 (3) 102 Walker Co.;
Tex.—**Uvalde Constr.**, Box 10286, Dallas, Tex., LB **$1,072,964**, grading, structures, storm sewers, concrete pavement 3.854 mi. Hy. Loop 12, Proj. U1089 (23) Dallas Co., CD 12/23;

▲ **TEXAS**—State Hy. Comn., Austin,
Tex.—**Brown & Root**, P. O. Box 3, Houston, Tex. CA **$2,886,827**, flex. base, concrete and b. conc. pavement, 5.396 mi. Hy. 1H 45, Proj. I 45-1(39) 061, Harris Co.;
Tex.—**T. M. Brown & J. Strain**, Box 1631, San Angelo, Tex., CA **$856,904**, grading, structures, base, surf. 13.415 mi. Hy. US 380, Proj. S 1907(3) Eastland Co.;
Tex.—**Wendell Constr. Co.**, P. O. Box 231, El Campo, Tex. CA **$514,599**, grading, structures, subgrade, base, surf. 12.153 mi. Hy. FM 521 Proj. S 679(4), Matagorda Co.;
Tex.—**Ballinger Constr.**, Box 943, San Benito, Tex. CA **$542,091**, flex. base, b. conc. 6.725 mi. Hy. ST 100, Proj. S-1911(2), Cameron Co. Grand total $4,790,421. Bids Jan. 26. CD 1/29, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,
Tex.—**Henry L. Stafford**, Box 1047, Lubbock, Tex., CA **$1,185,590**, lime stab., 2 course surf., railway overpass 7.699 mi. Hy. Loop 289, Proj. U 1107(1), Lubbock Co.;
Tex.—**L. H. Lacey Co.**, 5630 Yale Blvd., Dallas, Tex., CA **$2,289,742**, concrete pavement, flex. base, b. conc. pavement 11.348 mi. Hy. 1H45, Proj. I45-2(3)102, Walker Co.;
Tex.—**R. W. McKinney and T. L. James & Co.**, Box 190, Nacogdoches, Tex., CA **$889,397**, grading, structures, base, surf. 27.066 mi. Hy. ST 14 and FM 147 and 2489, Proj. F 161(6), Limestone Co.;
Tex.—**Uvalde Constr. Co.**, Box 10286, Dallas, Tex., CA **$1,072,964**, grading, structures, storm sewers, concrete pavement 3.854 mi. Hy. Loop 12, Proj. U-1089(23), Dallas Co. Grand total $5,437,693. Bids Jan. 27. CD 2/1, under LB.

BUILDINGS—LB & CA

▲ **The Austin Co.**, c/o M&M Bldg., Houston, Tex., CA **$2,000,000**, 2 story, 200,000 sq. ft. masonry STORE, U.S. Hy. 75 and Crosstimbers area, HOUSTON, TEX. Northline Shopping Center, c/o Theo. W. Berenson, 500 Gulfgate Mall, Houston, Tex. Montgomery Ward & Co., lessee. CD 10/21/59.

FAR WEST

BUILDINGS—BA

▲ **Calif., Los Angeles**—SCHOOL—BA 2/26—Bd. Educ., 1426 S. San Pedro St., Palos Verdes High School, Palos Verdes. $3,950,000. CD 4/14.

HEAVY CONSTRUCTION—LB & CA

▲ **WASHINGTON**—State Hy. Comn., Dpt. Hys., Olympia, **Northwest Constr. Co.**, 3950 6 Ave. N.W., Seattle, Wash., CA **$1,410,641**, est. $1,500,000, constr. cement-treated base and bit. surf. treatment, b. conc. and cement concrete paving, constr. 4 prestressed concrete girder bridges, etc. 5.204 mi. Primary St. Hy. 1, from jct. with Primary St. Hy. 5 to jct. with Secondary St. Hy. 5-A, FAP Nos. I-5-3 (91) 144, I-5-3 (67) 146, I-5-3 (67) 146, I-5-3 (69) 147 and S-0229 (2), King Co. Bids Jan. 26, awarded Jan. 27. CD 1/28, under LB.

▲ **Perini Corp.**, Tower Bldg., Seattle, Wash., CA **$9,997,139**, est. $10,336,000, completion of Mayfield Damon on Cowlitz River, TACOMA, WASH. City, City Hall, Tacoma, Wash. Bids Jan. 5. CD 1/7, under LB.

BUILDINGS—LB & CA

▲† **P. Kiewit Sons Co., Inc.**, 1300 Aloha St., Seattle, Wash., LB **$1,425,288**, est. $1,346,616, (7 bidders), FAMILY QUARTERS, Big Delta Inv. 60-21, FORT GREELY, ALASKA. U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash. Bids Jan. 28. CD 1/18.

▲ **Allen M. Campbell Co., General Contractors, Inc.**, P. O. Box 836, Tyler, Tex., CA **$2,662,000** SCIENCE BLDG. addn., Long Beach State College, LONG BEACH, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids Jan. 6, awarded Jan. 28. CD 1/15 under CA.

▲ **Nielsen Constr. Co.**, 3127 Jefferson St., San Diego, Calif., and **Lindgren & Swinerton, Inc.**, 1631 Beverly St., Los Angeles, Calif., CA Est. **$1,000,000**, two OPERATING HEADQUARTERS, Rose Canyon, northern section and at Market and F Sts., East San Diego, SAN DIEGO, CALIF. San Diego Gas & Electric Co., 861 6th Ave., San Diego, Calif. L. W. Davidson & Assocs., 3142 Wilshire Blvd., Los Angeles, Calif., archts.-engrs.

CANADA

BUILDINGS—BA

▲ **Ont., St. Catharines**—SCHOOL—BA 2/25—Linwell High School Bd., Grantham Twp., Secondary School, Church Rd. and Lake St. $1,450,000. Plans deposit $100. Macbeth & Williams, 104 Queen St., archts. CD 3/16.

HEAVY CONSTRUCTION—LB & CA

▲ **Foundation Co. of Quebec Ltd.**, 1900 Sherbrooke St. W., Montreal, Que., LB **$3,736,859**, superstructure of loading fingers and aeroquay, Montreal Airport, Dorval, MONTREAL, QUE. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Jan. 28. CD 12/22.

▲ **Foundation Co. of Quebec Ltd.**, 1900 Sherbrooke St. W., Montreal, Que., LB **$1,628,343**, central heating system (except boiler) Montreal Airport, Dorval, MONTREAL, QUE. Dpt. Transport, Hunter Bldg., Ottawa, Ont. Bids Jan. 28. CD 1/14.

BUILDINGS—LB & CA

▲ **Mannix & Co. Ltd., 737 8th Ave. W.**, and Burns & Dutton Concrete & Constr. Co. Ltd., 5720 4th St. SE, both of Calgary, Alta., CA Est. **$4,000,000**, TIRE MANUFACTURING PLANT, CALGARY, ALTA. Firestone Tire & Rubber Co. of Canada Ltd., Burlington St. E., Hamilton, Ont. CD 6/10.

▲ **Dominion Structural Steel Co. Ltd.**, 6894 Cianranald Ave., Montreal, Que., CA Total est. **$1,500,000** steel contract for BREWERY EXPANSION, PRINCE ALBERT, SASK. Sicks' Breweries (Alberta) Ltd., 218 11th Ave. W., Calgary, Alta. Rule, Wynn & Rule, 526 12th Ave. SW Calgary, Alta., archts.

▲ **G. Archambault Ltee**, 5215 Van Horne Ave., Montreal, Que., CA Est. **$1,000,000**, CHILDRENS VILLAGE, ORPHANAGE, FRANKLIN CENTRE, QUE. Corporation de Doria, Inc., c/o contractors.

FOREIGN

HEAVY CONSTRUCTION—LB & CA

▲ **John Mowlen & Co., Ltd.**, 91 Ebury Bridge Rd., London S.W. 1, England, CA Est. **$14,800,000**, 13,200,000 gal. capacity reservoir with 3,000 ft. long dam, in Derwent River near Edmundbyers on Northumberland-Durham border, ENGLAND. Sunderland & South Shields Water Co. and Durham County Water Co., c/o Contractor.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Tex., Bonham**—Bonham-Fannin County Water Dist., c/o City Hall, Dams 1 and 2, Timber Creek **$2,336,698**; water main from Lakes to city limits, **$190,000**. CD 2/8/57 under City, City Hall, as owner.

▲ **Wis., Milwaukee**—City, City Hall, water main extensions for 1960, **$5,230,000**. E. A. Schmidt, c/o owner, city engr. CD 5/12/58.

SEWERS, WASTE DISPOSAL

▲ **Mo., St. Joseph**—City, City Hall, bond election May 21, sewage treatment plant. **$9,000,000**. Black & Veatch, 1400 Meadow Parkway, Box 8405, Kansas City 14, Mo., engrs. CD 3/11/58.

▲ **O., Cleveland**—Bd. Comrs., Cuyahoga Co., County Admin. Bldg., 1219 Ontario St., Zone 13, sewage treatment plant to serve Middleburg Heights and Strongsville, **$1,893,670.**

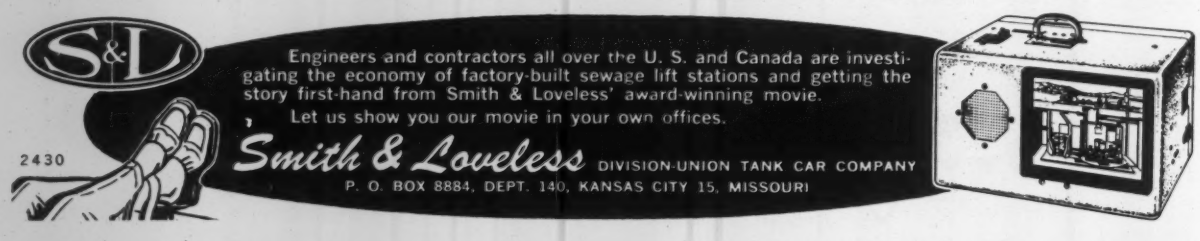
▲ **O., Elyria**—Bd. Comrs. Lorain Co., Courthouse, county wide sewers, **$4,100,000.** Floyd G. Browne & Assocs., 125 W. Church St., Marion, consult. engrs. CD 4/21/59.

BRIDGES

▲ **MICHIGAN**—State Hy. Dpt., Mason Bldg., Lansing, **Marquette Co.**—2 mi. relocation US 41 and M-28 to by-pass central business district, Marquette. **$1,728,000.** Bids Fall 1961.

STREETS AND ROADS

▲ **CONNECTICUT**—State Hy. Dpt., 24 Wolcott Hill Rd., Wethersfield,
Farming and West Hartford—relocation Rte. U. S. 6 as U. S. Interstate Rte. 84, 3.4 mi. from 1,200 ft. north-east of S. Main St., West Hartford to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Wolf Pit Rd., Farmington, **$9,000,000.** H. W. Lochner & Co., 150 N. Wacker Drive, Chicago, Ill. CD 3/21/56.

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,
Belmont Co.—straightening 2.3 mi. Rte. 149, St. Clairsville, **$600,000.**
Trumbull Co.—high speed hy. to link Ohio Rt. 18 with Pennsylvania Shortway, Girard-Hubbard, **$10,000,000-$15,000,000.**

▲ **OHIO**—State Hy. Dpt., State Depts. Bldg., Columbus, Zone 15,
Summit Co.—Rte. 21 from Ghent to Ohio Turnpike, **$14,367,422.** Beiswenger & Hoch, 1006 Grant St., Akron, consult. engrs. Bids after June.

▲ **PENNSYLVANIA**—Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,
Berks Co.—3.29 mi. 4-lane rein.-con. divided hy. Sec. LA, L. R. 793 section of Reading by-pass, **$4,729,200,** Bids in April.
Montgomery Co.—2.4 mi. 3 in. ID 2 bit. surf. on existing pavement and widening for fourth lane, L. R. 153 between Stenton Ave. Philadelphia and Whitemarsh, Proj. 731-1, **$970,000.** H. O. Anderson, c/o owner, ch. engr.

▲ **Tex., Garland**—City, City Hall, street paving imprvs. **$2,481,000.** Homer & Hunter Assocs., 3708 Abrams Rd., Dallas, consult. engrs. CD 8/12.

▲ **Ont., Toronto**—Municipality of Metropolitan Toronto, 67 Adelaide St. E., 6-lane Spadina Expressway, centre mall, Front St. to Model Ave., **$5,000,000.** M. M. Dillon & Co. Ltd., 88 Eglinton Ave. E (Ava Rd. to Model Ave.) and Fenco-Harris, 8 Spadina Ave., Toronto (Bloor St. to Ava. Rd.), consult. engrs. CD 11/25/53.

EARTHWORK, WATERWAYS

▲ **Tex., Edna**—Jackson County Flood Control Dist., Edna, water project, **$4,200,000.** Lockwood, Andrews & Newman, Box 13332, Houston, consult. engrs. CD 9/26/55.

AIRPORTS

▲† **N. M., Roswell**—ATLAS INTERCONTINENTAL BALLISTICS MISSILE LAUNCHING SITES—U. S. Eng., P. O. Box 1538, Albuquerque, 9 Atlas intercontinental ballistics missile launching sites, near Walker Air Force Base. **$47,000,000.** CD 9/9/58.

▲† **N. Y., Plattsburgh** — ATLAS ICBM LAUNCHING SITES—U. S. Eng., 111 E. 16th St., New York, Zone 3, nine underground Atlas ICBM launching sites, near here. **$47,000,000.**

▲† **Okla., Altus**—MISSILE LAUNCHING SITES— U. S. Eng., Box 61, Tulsa, Zone 2, nine underground Atlas Intercontinental Ballistic Missile launching sites, near Altus Air Force Base. **$47,000,000.**

▲† **Tex., Abilene**—LAUNCHING SITES—U. S. Eng., Box 1600, Fort Worth, launching sites for Atlas Intercontinental Ballistic Missiles, near Dyess Air Force Base, **$47,000,000.**

FOREIGN

▲ **Nigeria**—Government of Nigeria, Lagos, dams, hydroelectric, irrigation and navigation works, Niger River and Kaduna River. **$336,000,000.** To begin About 1962.

AMERICANS ABROAD

▲ **Australia, Sydney** — CRACKING PLANT — Shell of Australia Ltd., Shell Corner, 163 Williams St., Melbourne, C1, cracking plant at refinery near here. **$38,300,000.**

▲ **France, Donges**—PLANT — Societe' Californie—Atlantique (Oronite Chemical Co. sub. Standard Oil of California, 200 Bush St., San Francisco 20, Calif. U.S.A., ANTAR Petroles de l'Atlantique and Societe Progil, French Companies), plant to produce para-xylene for synthetic fibers. **$2,000,000.**

PUBLIC BUILDINGS

▲ **Ala., Huntsville**—SCHOOLS—City, City Hall, **$2,500,000** bond election Feb. 16, 2 Junior High Schools and 3 elementary schools.

▲ **Calif., Martinez**—HOUSING—Contra Costa Co. Housing Auth., 700 D St., plans by Donald Hardison & Assocs., 160 Broadway, Richmond, 260 low rent housing units Bayo Vista Area, near here. **$2,500,000.**

▲ **Calif., Martinez**—CLASSROOM UNIT, etc.—Contra Costa Junior College Dist., 1005 Escobar St., Building Program 1960-1964, incl. classroom unit, arts bldg., PE fields, locker rooms, swimming pools, physical science, parking lot, Diablo Valley College; life science, library, little theater, ball courts, swimming pools, etc. Contra Costa College. Total est. **$4,200,000.** CD 11/8/57.

▲ **Conn., Waterbury** — CLASSROOM — State P. Wks. Dpt., 165 Capitol Ave., Hartford, classroom bldg., Waterbury Technical Institute, **$2,400,000.**

▲† **Ga., Atlanta**—INDUSTRIAL CENTER—Dpt. Justice, Bureau Prisons, First and Indiana Ave. N. W., Wash., D. C., plans by Roberts & Co., 90 Poplar N. W., industrial center, **$2,000,000.**

▲ **Ga., Macon**—HOUSING—Macon Housing Auth., 1130 Oglethorpe St., plans by Dennis & Dennis, 1106 Bankers Insurance Bldg., Macon, W. Elliott Dunwody, Jr., 646 Archt St., Macon, and Ellamae Ellis League, 670 Mulberry St., Macon, 350 housing units. **$3,000,000.** CD 3/3/52.

▲ **Kan., Liberal**—HOSPITAL—City, Citizens Hospital Committee, $850,000 bond election Apr. 4, 100-bed hospital. **$1,700,000.** McVay, Peddie, Schmidt & Assocs., 1832 E. 2nd St., Wichita, archts.

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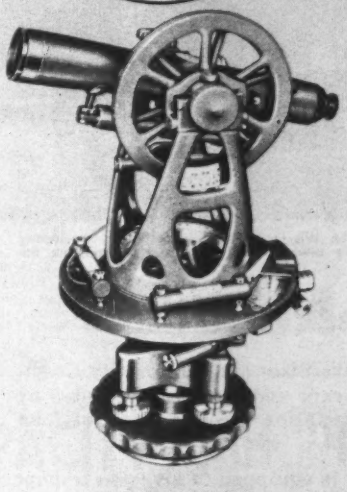

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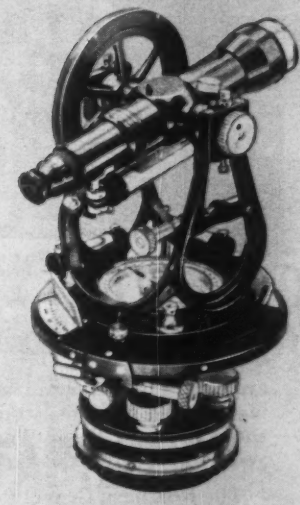

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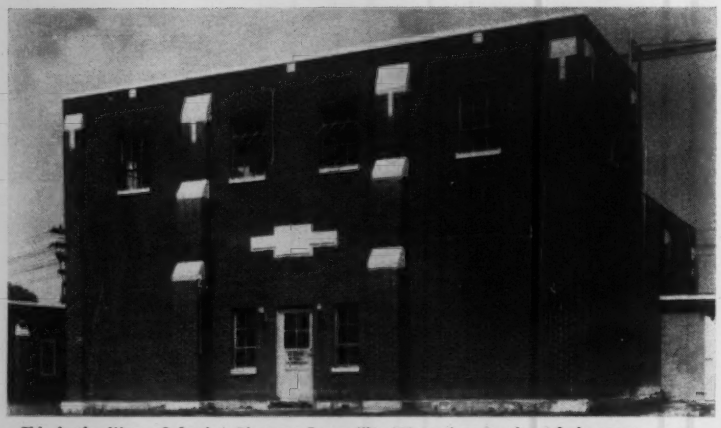

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▲ **Mass., Norwood**—SCHOOL—Town, Supt. Schools, 825 Washington St., plans by Korslund, LeNormand & Quann, Inc., 506 Washington St., high school addn., Nichols St. **$1,803,800.** Plans will be ready last of February. CD 1/26.

▲ **Mass., Wenham** — SCHOOL — Towns of Hamilton and Wenham, Chn. Wenham School Comn., plans by Kilham, Hopkins, Greeley & Brodie, 9 Arlington St., Boston, Regional High School, **$2,049,500.** Bids in Fall 1960. CD 9/18/57, under Mass., Hamilton.

▲ **N. J., Cranford**—SCHOOL—Bd. Educ. Twp. of Cranford referendum on bonds and project Mar. 15, 2 story high school, Orange Ave. **$2,658,000.** Epple & Seaman, 901 Broad St., Newark, archts. CD 9/16.

▲ **N. J., Kinnelon**—HIGH SCHOOL—Bd. Educ. voted referendum Jan. 21, high school, **$1,980,000.** Emil Schmidlin, Evergreen Ave. E., Orange, archt. CD 1/4.

▲ **N. J., Old Tappan**—SCHOOL—Northern Valley Regional, 150 Knickerbocker Rd., Demarest, voted bonds and project Jan. 19, high school, **$2,869,000.** F. P. Wiedersum Asso., 65 Roosevelt Ave., Valley Stream, N. Y., archts. CD 1/12.

▲ **N. J., Randolph Twp. (Dover P.O.)**—SCHOOL—Bd. Educ. Randolph Twp., plans by Epple & Seaman, 901 Broad St., Newark, school. **$2,100,000.**

▲ **N. Y., Albany**—OFFICE BLDG. No. 8—State Dpt. P. Wks., State Office Bldg., Zone 1, plans by Unger & Unger, Francis X. Gina Assocs., 219 E. 44th St., New York, Zone 17, steel frame, brick curtain wall. Bldg. No. 8, Dpt. Taxation and Finance. **$13,600,000.** DiStasio & Van Buren, 136 Liberty St., New York, Zone 6, consult. engrs. CD 1/15.

▲ **N. Y., Annadale**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Project E-474, Junior High School 7, Richmond Boro. **$3,925,000.** To go ahead after 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Michael Raduslovich, c/o owner. Proj. E-497, P. S. 257, Humboldt St. between Varet and Debevoise Sts. **$2,300,000.** To go ahead in 1960.

▲ **N. Y., Brooklyn** — SCHOOL — Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Voorhees, Walker, Smith, Smith & Haines, 101 Park Ave., New York, Zone 17, Proj. E-775, P. S. 282, 6 Ave. between Berkeley Pl. and Lincoln Pl. **$2,300,000.** To go ahead in 1960.

▲ **N. Y., Brooklyn** — SCHOOL — Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-96, P. S. 43, Brighton Beach Area. **$3,295,000.** To go ahead after 1960.

▲ **N. Y., Brooklyn** — SCHOOL — Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-498, Junior High School 578, East Flatbush Area. **$4,025,000.** To go ahead after 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Moore & Hutchins, 800 Second Ave., New York, N. Y., Proj. E-818, P. S. 288, Surf Ave. between W. 25th St. and W. 27th St. **$2,400,000.** To go ahead in 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Michael Radoslivitch, c/o owner, Proj. E-469, P. S. 304, vicinity of Sumner and Willoughby Aves. **$2,400,000.** To go ahead after 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-512, P. S. 250, vicinity of Leonard and Boerun Sts. **$2,995,000.** To go ahead after 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-738, Junior High School 271, vicinity of Hopkinson Ave. and Fulton St. **$3,500,000.** To go ahead in 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island, Proj. E-461, P. S. 303, vicinity Shore Parkway and West 5 St. **$2,995,000.** To go ahead after 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-535, P. S. 38, vicinity Dean St. and 3rd Ave. **$2,995,000.** To go ahead after 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-488, Junior High School 275, Brownsville Area. **$3,500,000.** To go ahead in 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Project E-475, P. S. 309, vicinity of Jefferson and Patchen Aves. **$2,895,000.** To go ahead after 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Project E-525, Academic High School, Central Brooklyn. **$8,000,000.** To go ahead after 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Project E-496, Academic High School in Southeast Brooklyn. **$7,100,000.** To go ahead after 1960.

▲ **N. Y., Brooklyn**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Project E-526, Junior High School, East New York Area. **$4,225,000.** To go ahead after 1960.

▲ **N. Y., Egbertville** — SCHOOL — Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Project E-524, P. S. 23, Richmond Boro. **$2,130,000.** To go ahead after 1960.

▲ **N. Y., Far Rockaway**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-737, P. S. 197, vicinity of Dinsmore Ave. and Nameoke St., Queens Boro. **$2,400,000.** To go ahead in 1960.

▲ **N. Y., Flushing**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-647,

P. S. 21, Queens Boro. **$2,895,000.** To go ahead after 1960.

▲ **N. Y., Hollis**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by LaPierre, Litchfield & Partners, 8 W. 40th St., New York, Zone 18, Proj. E-442, Junior High School 192, Hollis Ave. between 204 and 205 Sts., Queens Boro. **$3,400,000.**

▲ **N. Y., Jamaica**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-876, P.S. 80, vicinity proposed Housing Project at Jamaica Race Track, Queens Boro. **$2,335,000.** To go ahead after 1960.

▲ **N. Y., Kew Gardens**—PARKING GARAGE—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Proj. TF-40, multiple level parking deck, Queens Borough Hall for Dpt. Traffic. **$2,000,000.** Tippetts, Abbett, McCarthy, Stratton, 375 Park Ave., New York, Zone 22, engrs. CD 11/6/58.

▲ **N. Y., Long Beach**—SCHOOL—City, City Hall, voted **$1,800,000** bonds Jan. 26, Lido Junior High School addn. CD 1/7.

▲ **N. Y., Long Island City**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-508, P.S. 76, Queens Boro. **$2,895,000.** To go ahead after 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-806, P.S. 111 in Edenwald Area, Bronx Boro. **$2,400,000.** To go ahead in 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Ketchum & Sharp, 227 E. 44th St., Zone 17, Proj. E-460, conversion of Junior High School 30, E. 141 St. between Brook Ave. and St. Ann's Ave. into elementary school, Bronx Boro. **$2,200,000.** To go ahead in 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-802, addn. to P.S. 41, Olinville Ave. and Magenta St., Bronx Boro. **$1,250,000.** To go ahead after 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Belluschi, Catalano & Westerman, 111 W. 57th St., Zone 19, Proj. E-450, partial replacement and modernization Lincoln Square High School, West 65th St. between Broadway and Amsterdam Ave. **$4,950,000.** To go ahead after 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-888, P.S. 110, vicinity of Washington Ave. and Claremont Parkway, Bronx Boro. **$2,795,000.** To go ahead after 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by George J. Sole, 347 E. 52nd St., Zone 22, Proj. E-477, P.S. 29, Courtlandt Ave. between E. 156 and E. 157 Sts., Bronx Boro. **$2,800,000.** To go ahead after 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Urbahn, Brayton & Burrows, 635 Madison Ave., Proj. E-468, P. S. 161, West 133 St. between Convent and Amsterdam Aves. **$2,300,000.** To go ahead in 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-509, partial replacement and modernization P. S. 116, 2nd Ave. and E. 33 St. **$1,800,000.** To go ahead in 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Const., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Michael Raduslovich, c/o owner, Proj. E-418, P. S. 199, West 70 St. and Amsterdam Ave. **$2,400,000.** To go ahead in 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd., Educ., 42-15 Crescent St., Long Island City, plans by Michael Raduslovich, c/o owner, Proj. E-476, P. S. 79, vicinity of Madison Ave. and E. 117th St. **$2,500,000.** To go ahead in 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Michael Raduslovich, c/o owner, Proj. E-480, P. S. 76, vicinity of 7th Ave. and W. 116 St. **$2,500,000.** To go ahead in 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-537, P. S. 74, vicinity of E. 115 St. and Lexington Ave., **$2,500,000.** To go ahead in 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-772, Junior High School 133, vicinity of Westchester and Stebbins Aves., Bronx Boro. **$3,500,000.** To go ahead in 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-465, P. S. 153, Soundview Ave., Bronx Boro. **$2,895,000.** To go ahead after 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-538 P. S. 96, vicinity 5th Ave. and W. 130th St. **$3,375,000.** To go ahead after 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-444, Junior High School 143, vicinity W. 177th St. and St. Nicholas Ave. **$4,100,000.** To go ahead after 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Michael Raduslovich, c/o owner, Proj. E-857, P. S. 174, vicinity of Columbus Ave. and W. 84th St. **$2,500,000.** To go ahead in 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-505, P. S. 149, vicinity of Stephens Foster Houses. **$3,295,000.** To go ahead after 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-514, P. S. 153, vicinity of Amsterdam Ave. and W. 145th St. **$2,795,000.** To go ahead after 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-541, P. S. 185, vicinity of Lenox Ave. and W. 118 St. **$2,895,000.** To go ahead after 1960.

▲ **N. Y., New York**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-377, P. S. 138, vicinity of Hester and Orchard

(Continued on page 76)

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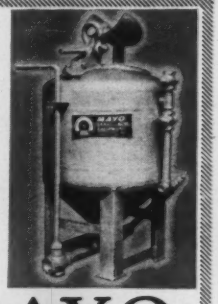

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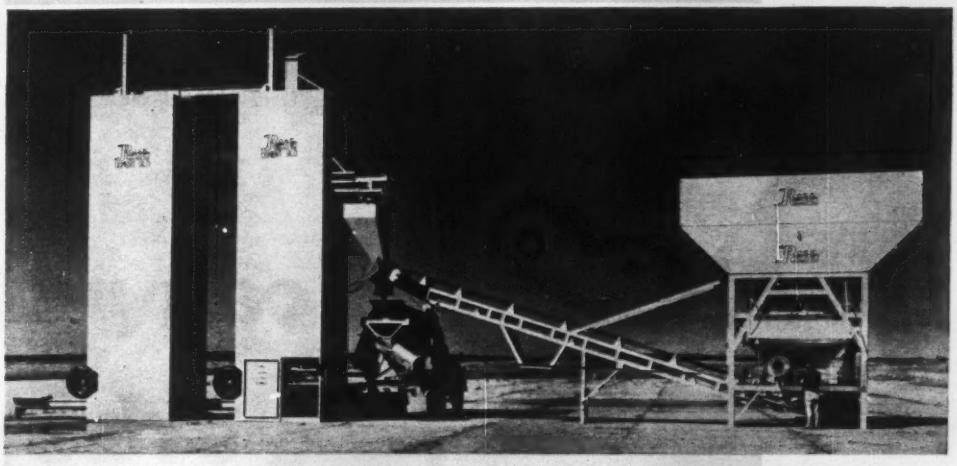

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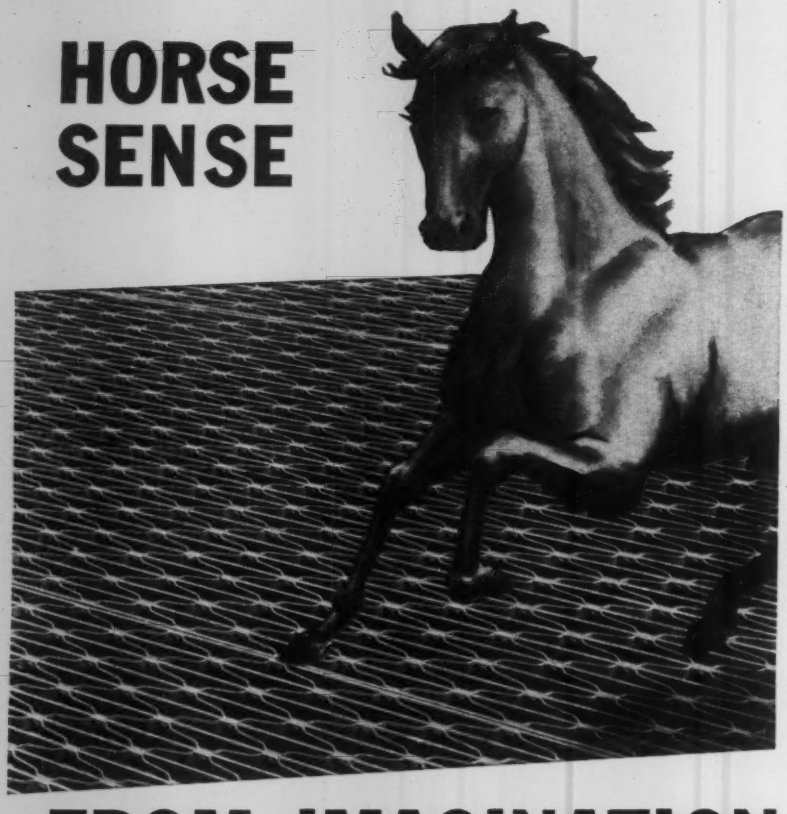

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(Continued from page 73)

Sts., Manhattan Boro. **$2,800,000.** To go ahead in 1960.

▲ **N. Y., New York**—SANITATION CENTER—Dpt. P. Sanitation, 125 Worth St., Zone 7, Proj. S-144, Harlem Sanitation Center, incl. incinerator and garage for Districts 9, 10 and 12, **$15,000,000.** Feld & Timoney, 60 E. 23rd St., Zone 10, engrs. To go ahead after 1960. CD 1/11/57.

▲ **N. Y., Rockaway Beach**—SCHOOL—Bureau Constr., Bd., Educ., 42-15 Crescent St., Long Island City, plans by Moore & Hutchins, 800 Second Ave., New York. Proj. E-462, P. S. 183, Beach Channel Dr. and Beach 79 and 80th Sts., Queens Boro. **$2,545,000.**

▲ **N. Y., Rockaway Park**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Tippetts, Abbett, McCarthy, Stratton, 375 Park Ave., New York, Proj. E-365, P. S. 225 vicinity of Rockaway Beach Blvd. and Beach 110 St., Queens Boro. **$2,795,000.** To go ahead after 1960. CD 5/17/57.

▲ **N. Y., South Jamaica**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj E-434, Junior High School 8, vicinity of Brinkerhoff and Merrick Aves., Queens Boro. **$3,500,000.** To go ahead after 1960.

▲ **N. Y., South Ozone Park**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, plans by Michael Raduslovich, c/o owner, Proj. E-463, P. S. 232, 84th St. between 153 and 155 Sts., Queens Boro. **$2,400,000.**

▲ **N. Y., South Ozone Park**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Proj. E-542, Junior High School 202, Queens Boro. **$4,000,000.** To go ahead after 1960.

▲ **N. Y., West New Brighton**—SCHOOL—Bureau Constr. Bd. Educ., 42-15 Crescent St., Long Island City, Project E-520, Junior High School 27, Richmond Boro. **$3,500,000.** To go ahead after 1960.

▲ **N. Y., West New Brighton**—SCHOOL—Bureau Constr., Bd. Educ., 42-15 Crescent St., Long Island City, Project E-174 P. S. 25, vicinity of Broadway and Market St., Richmond Boro. **$2,610,000.** To go ahead after 1960.

▲ **O., Dover**—SCHOOLS—Bd. Educ., Dover, bond election May 3, schools, **$1,876,400.** Outclat-Guenther & Assocs., 13124 Shaker Sq., Cleveland, Zone 20, archts. CD 11/12/57.

▲ **Ore., Eugene**—SCHOOLS—Lane Co. (Eugene) School Dist. No. 4, 275 7th Ave., bond election Mar. 1, schools, **$3,000,000.** CD 10/31/55.

▲ **Pa., Phila.** — PARKING GARAGE — Phila. Parking Auth., Jefferson Bldg., parking garage, 7 and Arch Sts. **$2,500,000.** Wilbur Smith & Assocs., 495 Orange St., New Haven, Conn., consult. engrs. for preliminary surveys. CD 6/22/53.

▲ **Pa., Springfield**—SCHOOL—Springfield Twp. School Dist. plans by Martin Stewart & Noble, 117 S. 17 St., Phila., Junior High School, Woodland Ave. **$2,150,000.** Allabach & Renis, 16 S. Broad St., Phila., engrs. Bids soon. CD 3/26.

▲ **Tex., Denton**—GENERATING PLANT—City, City Hall, bond election Jan. 30, electric generating plant addn. **$4,750,000.** CD 9/27/54.

▲† **Va., Fort Eustis**—HOSPITAL—U.S. Eng., foot of Front Street, Norfolk, Zone 1, plans by Marcellies, Wright & Sons, 100 E. Main St. and Merrill C. Lee, 601 Franklin, Richmond, 3 story, 116-bed hospital. **$3,000,000.** CD 9/8/58.

COMMERCIAL BUILDINGS

▲ **Calif., Mill Valley**—SHOPPING CENTER—Brice Bros., c/o F. Newton, Southern Marin Realty Co., 648 Redwood Hy., plans by Robert Batchelor, 341 Embarcadero, San Francisco, shopping center, Miller Ave. and Camino Alto. **$2,000,000.**

▲ **Calif., Newark**—CITY ADMINISTRATION OFFICES, etc.—City, City Hall, bond election Apr. 11, city admin. offices, police admin. bldg., library and auditorium. **$1,850,000.** Welton Beckett & Assocs., 153 Maiden Lane, San Francisco, archts.

▲ **Calif., Oakland**—APARTMENT, etc.—Gerson Bakar, 153 E. 14th St., plans by Wurster, Bernardi & Emmons, 202 Green St., San Francisco, 3 story apartment, two swimming pools. **$2,250,000.** CD 5/27/58.

▲ **Ill., Quincy**—HOSPITAL—St. Mary Hospital, Vermont St., plans by Hadley & Worthington, Myers Bldg., Springfield, hospital. **$4,000,000.** Bids about April. CD 7/20.

▲ **Mo., St. Louis**—MEDICAL—Harry Hooper et al, c/o Hooper Constr. Co., 8131 Page Blvd., University City, Zone 30, plans by Walter B. Kromm & Assocs., 111 S. Meramec Ave., Clayton, Zone 5, 2 story addn. atop 5 story parking structure to be known as Mid-Town Medical Bldg., 4550 West Pine Blvd. **$4,000,000.**

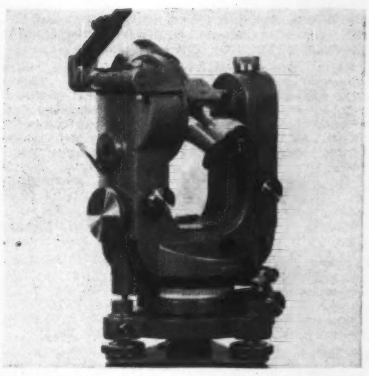
▲ **Md., Silver Spring**—APARTMENT—Owner, c/o Collins, Krondstadt & Assoc., archts., 7705 Georgia Ave. N.W., Wash., D. C., seven 188 unit apartment, Piney Branch Rd. near New Hampshire Ave. **$1,880,000.**

▲ **N. J., Phillipsburg**—SHOPPING CENTER—Gallagher & McManus, Chester, Pa., shopping center, Memorial Parkway, Lopatcong Twp. **$3,000,000.**

▲ **N. Y., Amherst**—HOMES—Pearce & Pearce Co., 3400 Main St., Buffalo, 100 homes, Briarhurst South Subdivision. **$2,750,000.** Constr. this Spring.

▲ **N. Y., Brooklyn**—BANK and OFFICE—Brooklyn Savings Bank, Pierpont and Clinton Sts., Zone 1, plans by Carson & Lundin, 425 Park Ave., New York, Zone 22, 4 story bank and office, 205-211 Montague St. **$2,000,000.** To go ahead 1960.

▲ **N. Y., Brooklyn**—OFFICE—Brooklyn Union Gas Co., 176 Remsen St., Zone 12, plans by Francisco &



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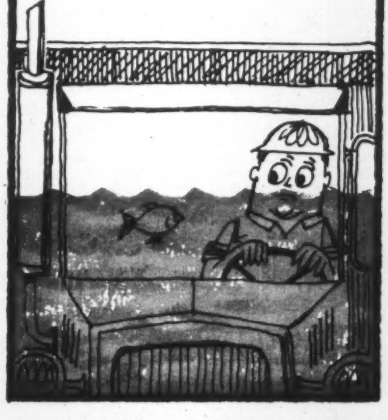

Jacobus, 511 Fifth Ave., New York, Zone 36, 14 story office, 195 Montague St. To go ahead 1960.

▲ **N. Y., New York**—MEDICAL RESEARCH CENTER, etc.—Columbia-Presbyterian Medical Center, Broadway and 68th St., plans by Rogers & Butler, 219 E. 44th St.,
18 story medical research center, library and central service bldg., **$21,500,000.**
residence hall for married students, **$3,200,000.**
renovation classrooms, **$2,400,000.**
auditorium, **$1,100,000.**
altering Presbyterian Hospital, **$2,000,000.**
doctors offices addn. **$2,000,000.**
modernizing Babies Hospital, **$2,000,000.**
X-ray department, $800,000, Broadway, W. 165th St. and West 168th Sts.

▲ **N. Y., New York**—OFFICE—Jack Brause, 280 Madison Ave., Zone 16, plans by H. I. Feldman, 415 Lexington Ave., Zone 17, 14 story office, 210 E. 59th St. **$2,000,000.**

▲ **N. Y., New York**—OFFICE—Silvan Lawrence, 150 Nassau St., plans by Fred Safran, 116 Nassau St., 17 story office, 37-41 Chambers St. **$2,000,000.**

▲ **N. Y., New York**—LIBRARY ADDN, etc.—Pierpont Morgan Library, 29 E. 36 St., plans by Alexander P. Morgan, 32 E. 57 St., library addn., alterations and auditorium, northeast corner of Madison Ave. and E. 36 St. **$3,000,000.** Meyer, Strong & Jones, Inc., 230 Park Ave., consult. engr.

▲ **N. Y., Syracuse**—JOURNALISM BLDG., etc.—University of Syracuse, School of Journalism, Newhouse Communications Center. **$2,000,000.**

▲ **Pa., Clifton Heights**—MERCHANDISING MART—Owner, c/o Morris A. Kravitz, Inc., and Saul G. Morgenstein, 225 S. 15 St., Phila., merchandising mart, Baltimore Pike, **$2,500,000.** Bids soon.

▲ **Pa., Rydal**—APARTMENTS—Jules Segal, Melrose Park, plans by Thalheimer & Weitz, 1325 Walnut St., Phila., three 12 story apartments, (144 units) Rydal Station of Reading Railroad, **$2,000,000.**

▲ **Tex., Fort Worth**—HOTEL, etc.—Jack Danciger, c/o Danciger Bldg., plans by Williams & Reeves, 3327 Winthrop St., 25 story hotel, motel and convention center, 3 story below ground auto parking, swimming pool. **$22,500,000.**

▲ **Tex., Houston** — SHOPPING CENTER — Syndicated Properties, Inc., c/o Richard Walten, archt., 3812 Mt. Vernon St., and F. Woodrow Bush, archt., 827 Ridge St., shopping center, **$3,000,000;** hard pavement for shop, area and auto center, **$100,000;** area earthwork and drainage, **$65,000,** for Spring Branch-Memorial area.

▲ **Va., Alexandria**—APARTMENT—Carl Reeman, 7800 Old Georgetown Rd., Bethesda, Md., plans by Collins & Kronstadt, 7705 Georgia Ave. N.W., Wash., D. C., apartment, southeast corner Shirley Highway and Duke St., ALEXANDRIA, VA. **$17,800,000.** Holland Engineering, 120 W. Pitt St., consult. engr.

▲ **Va., Falls Church**—APARTMENT—Mas Matthews & Louis Carusillo, 7403 Baltimore Ave., Takoma Park, Md., plans by Walton & Assoc., 3510 Rhode Island Ave., Mt. Rainier, Md., two six story, 180 units apartments, near Seven Corners. **$2,000,000.**

▲ **Wis., Milwaukee** — SEMINARY — Milwaukee-Downer Seminar, 2513 E. Hartford Ave., plans by Kloppenburg & Kloppenburg, 5906 N. Port Washington Rd., seminary, River Hills. **$1,600,000-$2,000,000.** CD 6/10.

▲ **Ont., Waterdown**—HOUSES—Flambroo Park Development Ltd., Rm. 616, 159 Bay St., Toronto, 1,500 houses, No. 5 Hy. near Hamilton, **$15,000,000.** To proceed in April.

▲ **Que., Petit Lac Magog**—RETARDED CHILDREN CENTRE—Centre Notre Dame de La Joie, c/o Albert Poulin, archt., 1115 Prospect St., Sherbrooke, retarded children centre, Chemin Ste. Catherine. **$2,000,000.** Cote, Lemieux, Carignan & Bourque, 144 Vimy St. N., Sherbrooke, consult. engrs.

INDUSTRIAL BUILDINGS

▲ **Conn., Hamden**—PLANT—M. B. Mfg. Co., 781 Whalley Ave., New Haven, 1 story, 250,000 sq. ft. plant, Meadowbrook Golf Club. **$3,000,000.**

▲ **Georgia**—PLANT—Georgia Power Co., 75 Marietta St. N.W., Atlanta, steam electric generating plant, Chattahoochee River, 12 mi. north of Atlanta. **$75,000,000.** Southern Services, Inc., 600 18 St. N., Birmingham, Ala., consult. engr.

▲ **La., Baton Rouge**—PLANT—Enjay Co., Inc., (Petro-Chemical Div., Esso Standard Oil Co.), 15 W. 51st St., New York 19, N. Y., petrochemical plant addn.: 38,000 ton annual capacity more butyl rubber. **$16,000,000.** CD 3/26/56.

▲ **N. J., Perth Amboy**—PACKAGING PLANT—Union Carbide Chemical Co., 30 E. 42 St., New York, N. Y., plans by Fellheimer & Wagner, 155 East 42 St., New York, N. Y., 235,000 sq. ft. packaging plant for Plastics Division.

▲ **Va., Danville**—WAREHOUSE—P. Lorillard Co., 200 E. 42 St., New York, N. Y., processing plant and warehouse. **$7,000,000.** Lockwood Greene Engineers, Inc., Montgomery Bldg., Spartanburg, S. C., consult. engr.

UNCLASSIFIED

▲ **Mich., Detroit**—FREIGHT CLASSIFICATION YARD—New York Central RR., C. E. Defendorf, ch. engr., 466 Lexington Ave., New York 17, N. Y., electronic freight classification yard. **$13,000,000.**

▲ **Pa., Concordville**—RACE TRACK—Concord Trotting Park, Inc., 104 W. Front St., Media, harness race track, Concord Twp. off Baltimore Pike. **$5,000,000.**

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1912 First open steel flooring for industrial plants.

1916 First steel mesh armoring in surface of heavy duty concrete industrial floors.

1917 First open steel mesh for ship walkways.

1927 First open steel mesh for runways on freight car tops.

1927 First continuous grating (one piece for any length and width)

1932 First open steel mesh decking for use on bridges.

1940 First use of portable emergency landing mats for airplanes (U. S. Army).

1943 First open mesh roadway armoring for highways.

1959 First fabrication of magnesium grating.

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IRVING SUBWAY GRATING CO., Inc.
Originators of The Grating Industry Est. 1902

Offices and Plants at:
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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
February 17 Maine

BUILDINGS—BA

▲ **Mass., Worcester**—OFFICE—BA 2/18—Owner, c/o Alpers, Bedar & Goodman, archts., 270 Dartmouth St., Boston, and 151 Main St., Worcester, (selected list bidders), office addn., alterations, Pleasant and Linden Sts. $1,000,000. CD 9/28.

▲ **Conn., New Britain**—SCHOOL—BA 3/2—State P. Wks. Dpt., 165 Capitol Ave., Hartford, Project BI-R-178, E. C. Goodwin Regional Vocational Technical School. $2,500,000. Plans deposit $65. CD 10/22.

HEAVY CONSTRUCTION—LB & CA

▲ **Lewis C. Bowers & Sons, Inc.,** 341 Nassau St., Princeton, N. J., CA Approx. **$2,000,000,** 50,000 sq. ft. Broadcasting Center, for Radio Station WTIC and Television Station WTIC-TV Channel 3, first construction in Front-Market St. Redevelopment Area, HARTFORD, CONN. Travelers Broadcasting Service Corp., 17 Central Row, Hartford, Conn. CD 2/18.

BUILDINGS—LB & CA

Lifetime Homes, Inc., Maple Ave., Old Saybrook, Conn., Owner Builds, **$800,000,** 80 HOUSES, Clark Hill Rd., HADLYME, CONN. CD 8/14/58.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
March 4 Pennsylvania
STREETS AND ROADS
February 16 Maryland February 17 Delaware

▲† **Pa., Phila.**—AIR CONDITIONING—BA 2/18—General Services Admin., 250 Hudson St., New York, N. Y., air conditioning 30th St. Post Office, $3,770,000. Kuljian Corp., 1200 N. Broad St., engrs. CD 10/6.

▲ **New York**—BA 2/23—Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York, Zone 19, constr. Niagara Parkway, Bellevue Ave. to Devil's Hole State Park, Niagara Falls and Town of Lewiston, Niagara Co. to incl. 192,000 cu. yd. excav., 2,580 cu. yd. concrete for structures, 21,070 lin. ft. 12- to 48-in. rein.-con. culvert pipe, 136,600 lb. bar reinforcement for structures, etc., 2 mi. Specs. No. 627.03, Niagara Contr. No. N19. Plans $10 per initial set, $5 per set for addnl. sets, not refundable. Clarke & Rapuano, 830 Third Ave., New York, Zone 22, engrs. CD 8/15/57.

BUILDINGS—BA

▲ **Pa., Fort Washington**—ACADEMY—BA 2/16—Germantown Academy School, Lane and Green St., Phila., 4 buildings academy, $3,000,000. Howell Lewis Shay & Assocs., and Paul M. Hesser Jr., Packard Bldg., Phila., archts. CD 2/20.

▲ **N. J., Perth Amboy**—HOSPITAL WING—BA 2/25—Perth Amboy General Hospital, 530 New Brunswick Ave., hospital wing, $2,500,000. Ferrenz & Taylor, 1451 Broadway, New York, N. Y., archts. CD 4/9/58.

▲ **N. J., Trenton**—HOSPITAL addns.—BA 3/11—Bd. Trustees Mercer Hospital, 446 Bellevue Ave., hospital addns., alterations. $1,000,000. Skidmore, Owings & Merrill, 425 Park Ave., New York, N. Y., archts.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany,
N. Y.—**D. A. Collins Constr. Co., Inc.,** Box 191, Mechanicville, N. Y., CA **$3,084,127,** est. $4,036,000, b. conc. Type 1A pavt. 4.45 mi. grade, drain 0.83 mi., RR spes., 2 sp. girder 161.4 ft., City of Amsterdam East-West arterial Hy., Amsterdam East, Rte. 5, Comn. Amsterdam-Cranesville, SH 180 and Hoffman-Cranesville SH 5126, Rte. 5 FAC 69-20, FASH 69-25, FARC 59-162, Montgomery Co.;
N. Y.—**Rapine Contg. Corp.,** 399 Duffy Lane, Hicksville, N. Y., CA **$5,189,079,** est. $6,570,000, 9 in. colored c. conc. pavt. 5 hy. seps. comp. beams 107.7 ft., 1 hy. sep. rein.-con. rigid frame 98.3 ft. Wantagh-Oyster Bay Expressway (Old Country Rd., Co. Rd. N. 4 to Jericho Turnpike, Plainview RD SH 436) FAWOBE 59-1, Contr. No. 1, Proj. U-1110 (2), Nassau Co. Bids Dec. 18. CD 12/21, under LB.

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany, Bids opened 2/4,
N. Y.—**Hogeboom & Campfield, Inc.,** Seneca Turnpike, N. Hartford, N. Y., LB **$1,086,768.50,** est. $1,497,000, (14 bidders), b. conc. 6.48 mi., repair exist. Br. No. 1 corrug. plate twin arch Br. 25 ft. comp. W.F. beam Br. 104.5 ft., Chenango Towpath, SH 175 Port Crane-North Fenton, SH 963, Rte. 369, FARC 60-10, Proj. S-815(2), Broome Co.

N. Y.—**Elmhurst Contg. Co., Inc.,** 53-09 97th Place, Corona, N. Y., LB **$1,868,067,** est. $2,653,000, (15 bidders), 9 in. c. conc. pavt. 24 in. wide, 6.04 mi., b. conc. pavt. 0.74 mi. access roads 2.75 mi. Bradford-Carrollton, Pt. 1 SH 8007, Bradford-Carrollton, Pt. 2, SH 8018 and 8018A, Bradford-Carrollton, Pt. 3, SH 8144, Rte. 18 FARC 60-25, Proj. F-30 (5), Cattaraugus Co.

N. Y.—**Rhodes Constr. Co., Inc.,** 161 Woodlawn Ave., Depew, N. Y., LB **$636,339,** est. $851,000, (11 bidders), b. conc. 4.65 mi., misc. work 0.02 mi., corrug. plate twin arch bridge 36 ft. Little Valley-Randolph, Pts. 1 and 2, SH 8149 Little Valley-Randolph Pt. 3, SH 5258A, Rte. 242 FARC 60-9, Proj. F-603 (9), Cattaraugus Co.

N. Y.—**Slattery Contg. Co., Inc. & Slattery Tunnel Corp.,** 46-36 54th Rd., Maspeth 78, N. Y., LB **$10,309,402.90,** est. $12,667,000, (16 bidders), c. conc. roadway on viaduct 0.82 mi. misc. work 0.02 mi., streets and ramps 14.2 mi., c. conc. pavt. ramps 0.06 mi. steel elevated (viaduct) struct. 83 sp. 4,322.5 ft. Int. Rte. connection 512, Gowanus Expressway (36th St. to 53rd St.) Int. Tour Rte. 278, FIGE 60-1, Proj. I-U-278-1(46), Kings Co.

N. Y.—**Hendrickson Bros., Inc.,** 63 N. Central Ave., Valley Stream, N. Y., LB **$636,953.46,** est. $912,000, (10 bidders), drainage and misc. work Mineola Village-Jericho Turnpike 2.54 mi. SH 1785 Mantagh-Central Park, Pt. 3, SH 42-3, Massapequa-Glen Cove, SH 9017, Coram-Middle Island East, SH 8291, FARC 60-2, Proj. F-1000(8); F-488(5). S-212(3); S-377(4), Nassau and Suffolk Counties.

N. Y.—**Nassau Constr. Co., Inc.,** 69-34 51st Ave., Woodside 77, N. Y., LB **$772,945.50,** est. $896,000, (8 bidders), 9 in. c. conc. pavt., misc. pavt. 0.35 mi., rehabilitation, Macombs Dam Bridge Harlem River Dr. (Contr. No. 139A)-143rd St. to 145th St. and 153rd St. to 155th St., FAHRD 60-1, Proj. U-1133(6), New York Co.

N. Y.—**Johnson, Drake & Piper, Inc.,** 86 Trinity Pl., New York 6, N. Y., LB **$3,296,493.16,** est. $3,313,000, (21 bidders), 9 in. c. conc. pavt. variable width 0.09 mi. misc. work Highbridge Interchange ramps, 3 hy. seps. plate girders 385 ft., 411 ft. and 317 ft., rehabilitating struct. No. 20 plate girder misc. work on Alexander Hamilton Bridge, Int. Rte. connection 511 Contr. 3, Cross Bronx Expressway (Highbridge Interchange), Rte. 95, FICBE 60-1, Proj. I-95-1(36), New York Co.

N. Y.—**Depew Paving Co., Inc.,** 161 Woodlawn Ave., Depew, N. Y., LB **$1,638,600,** est. $1,837,000, (4 bidders), b. conc. 1.88 mi., misc. work 0.07 mi. extension rein.-con. twin box bridge 24 ft. city of Niagara Falls; Hyde Park Blvd. (B St. to Jerauld Ave.), FAC 60-14, Proj. U-1128(2), Niagara Co.

N. Y.—**Depew Paving Co., Inc.,** 161 Woodlawn Ave., Depew, N. Y., LB **$525,122.50,** est. $629,000, (6 bidders), 9 in. unrein. c. conc. 2.96 mi., misc. work 0.09 mi. Lockport Rd. (County Rd. No. 132), FASS 60-1, Proj. S-528(2), Niagara Co.

N. Y.—**Louis Mayersohn, Inc.,** 50 State St., Albany, N. Y., LB **$940,645.25,** est. $1,364,000, (13 bidders), b. conc. Type 1A 8.26 mi., misc. work 0.04 mi. Madrid-Waddington Pt. 1 SH 1262, Madrid-Waddington, Pt. 2, SH 966 Waddington Village, SH 1126, Rte. 345, FARC 60-5, Proj. S-110(2), St. Lawrence Co. CD 1/11.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg,
Hempt Bros., Inc., R.D. 1, Camp Hill, Pa., CA **$1,705,690,** 10,530 ft. rein.-con. 24 ft. wide each divisor, 4 bridges (Interstate), L.R. 767 (4) section of Harrisburg, Dauphin Co. Bids Dec. 18. CD 12/24, under LB.

▲ **Alcon Utilities & Lehigh Foundations, Inc.,** Davisville and Teawood Rds., Willow Grove, Pa., LB **$1,486,118,** sewers, NORRISTOWN, PA., East Norristown Twp., 2828 Swede St., Norristown, Pa., CD 7/2;
R. M. Luff Constr. Co., Ork and Welsh Rds., Willow Grove, Pa., LB **$111,029,** 2 sewage pumping stations, (Norristown, Pa.)

BUILDINGS—LB & CA

▲ **Parkside Manor Homes,** c/o Lane Realty Co., 107-40 Queens Blvd., Forest Hills, N. Y., Owner Builds, **$1,125,000,** 45 HOUSES, East 85th St. and Avenue N, BROOKLYN, N. Y.

▲ **North Point Homes,** c/o Ackerman & Harris, Jericho Turnpike, Commack, N. Y., Owner Builds, **$1,600,000,** 100 HOUSES, Vanderbilt Motor Parkway near Northern State Parkway, HUNTINGTON, N. Y.

▲ **John W. Cowper Co.,** 1945 Sheridan Dr., Tonawanda, N. Y., CA **$4,288,000,** general contract 12 BUILDINGS, School for Mentally Retarded, WEST SENECA, N. Y. State Dpt. P. Wks., State Office Bldg., Albany, N. Y. Bids Dec. 16, awarded Jan. 19. CD 12/23, under LB;
John H. Knox Co., Inc., 1738 Fillmore Ave., Buffalo 14, N. Y., CA **$690,036,** heating 12 bldgs., School for Mentally Retarded (West Seneca, N. Y.).

Anthony P. Miller, Inc., 3333 Arctic Ave., Atlantic City, N. J., LB **$862,400,** general contract 150-unit HOUSING, BRIDGETON, N. J. Bridgeton Housing Auth., Bridgeton, N. J. Bids Jan. 20. CD 1/13.

Richard L. Wells, 63 N. Washington St., Bergenfield, N. J., Owner Builds, **$850,000,** 32 HOUSES, Hardenberg, Rd., DEMAREST, N. J. Harsen & Johns, 60 Westervelt Ave., Tenafly, N. J., archts.

▲ **Bier-Higgins Realty Co., Inc.,** 87 W. Allendale Ave., Allendale, N. J., Owner Builds, **$2,750,000,** 115 HOUSES, Wyckoff and Fardale Ave., MAHWAH, N. J.

▲ **James J. Tully,** 383 Washington Ave., Belleville, N. J., Separate Contracts, **$4,000,000,** RESIDENTIAL DEVELOPMENT (300), incl. sewers, streets, etc., TOMS RIVER, N. J. Morgan M. Davis, 383 Washington Ave., Belleville, N. J., archt.

▲ **Richard G. Kelly,** 1000 Shadeland Ave., Drexel Hill, Pa., Separate Contracts, **$1,000,000,** RESIDENTIAL DEVELOPMENT (100), CHESTER, PA.

▲ **Ragnar Benson, Inc.,** Two Gateway Center, Pittsburgh, Pa., CA est. **$3,000,000,** 2 story, bsmnt., 220,500 sq. ft. DEPARTMENT STORE MONROEVILLE, PA. Kaufmanns', Fifth and Smithfield Sts., Pittsburgh, Pa. John Graham & Co., 105 Duane St., New York, N. Y., archts. design interiors, Weldon Beckett Co., 5657 Wilshire Blvd., Los Angeles, Calif., archt.

▲ **Joseph Nebel Co.,** 3408 Wisconsin Ave. N.W., Wash., D. C., LB **$1,054,000,** WAREHOUSE PLANT at Kenilworth Interchange, CHEVERLY, MD. Pepsi-Cola Bottling Co., 901 17th St. N.E., Wash., D. C. Bids Jan. 28. CD 1/14.

▲ **Hooper Constr. Co.,** 4620 Lee Highway, Arlington, Va., CA Est. **$1,500,000,** COUNTRY CLUB, incl. club house, swimming pools, golf course, roads, etc., ROCKVILLE MD. Lakewood Management, Inc., 4910 Cordell Ave., Bethesda, Md. Clark T. Harmon, 4630 Montgomery Ave., Bethesda, Md., archt. CD 11/19.

▲† **Somers Constr. Co., Inc.,** Union Ave. and Cynwyd Rd., Bala Cynwyd, Pa., CA **$1,586,600** ELEMENTARY-JUNIOR HIGH SCHOOL-SENIOR HIGH SCHOOL, Dover Air Force Base, DOVER, DEL., Housing & Home Finance Agency, Widener Bldg., Phila., Pa. Bids Jan. 14. CD 1/7.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
February 16 South Carolina
STREETS AND ROADS
February 16 South Carolina

S. C., **Abbeville**—BA 3/8—City, City Hall, sewage disposal plant lines, etc. $736,000. B. P. Barber & Assocs., 1418 Marion St., Columbia, engrs. CD 7/24.

BUILDINGS—BA

▲ **Va., Fairfax**—SCHOOL—BA 2/15—Fairfax County Bd. Educ., William Cullen Bryant Intermediate School, off Rte. 1, near Penn-Daw. Plans deposit $25. Pickett & Seiss, 110 Gordon Rd., Falls Church, archts. CD 2/13/59.

Ky., Glasgow—HOUSING—BA 2/25—Glasgow Municipal Housing Comn., low rent housing Projects Ky. 26-1 Ky. 26-2. $900,000. Plans deposit $50. Hartstern, Louis & Henry, McDowell Bldg., Louisville, Zone 2, archts. E. R. Ronald & Assocs., 554 S. 3 St., Louisville, Zone 2, engrs. CD 10/8.

HEAVY CONSTRUCTION—LB & CA

▲† **J. A. Jones Constr. Co.,** P.O. Box 966, Charlotte, N. C., CA **$6,279,636,** diversion tunnel, outlet works and access roads on Summersville Reservoir Project, Gauley River, CIVENG-46-022-60-37, WEST VIRGINIA. U. S. Eng., 237 4 Ave., Huntington, W. Va. Bids Jan. 13. CD 1/19, under LB.

▲ **NORTH CAROLINA**—State Hy. Comn., Raleigh, Bids 2/2,
N. C.—**Barrus Constr. Co.,** Kinston, N. C., LB **$510,193,** CABC, S.A. base, b. conc. surf., etc., 2.14 mi. addnl. lane on US 70 from NC 101 at Havelock southeast 2.142 mi. Proj. 8.12068, F-64(9), Cravon Co.;
N. C.—**Rea Constr. Co.,** 209 W. 4th St., Charlotte, N. C., LB **$1,608,733,** CABC, 9 in. conc. pavement 8.4 mi. surf. Interstate Rte. 40 from point between US 221 and NC 26 south of Marion, east to point 4 mi. west of Glen Alpine, Proj. 8.18526, I-40-2(24) 86, McDowell and Burke Counties. CD 1/20.

▲ **NORTH CAROLINA**—State Hy. Comn., Raleigh, Bids opened 2/2,
N. C.—**T. A. Loving & Co.,** Wachovia Bank Bldg., Goldsboro, N. C., LB **$2,848,758,** bridge over Alligator River, 3.617 mi. Proj. 8.11907, S-1261(1), Tyrrell and Dare Counties;
N. C.—**McMeekin Constr. Co.,** Cheraw, S. C., LB **$663,082,** bridge over Catawba River, 0.925 mi. Proj. 8.16517, S-1400(1), Mecklenburg Co., N. C., and York Co., S. C. CD 1/20.

▲ **Corbin Constr. Co.,** P. O. Box 471, Dunn, N. C. LB **$1,299,766,** Contract No. 3, sewage treatment plant, CONCORD, N. C. City, City Hall, Concord, N. C., Bids Jan. 28, CD 1/6;
Terry Constr. Co., P. O. Box 3355, Greenville, S. C., LB **$120,000,** Contract No. 1, East Outfall Sewer (Concord, N. C.);
Industrial Electric Co., P. O. Box 1521, Charlotte, N. C., LB **$71,170** Contract No. 4, electrical work for sewage treatment plant (Concord, N. C.).

† **Nello L. Teer Co.,** P.O. Box 1131, Durham, N. C., CA **$775,800,** grading, grubbing, clearing roads and preloading for Voice of America Radio Transmission Station, GREENVILLE, N. C. U. S. Information Agency, 1734 New York Ave. N.W., Wash., D. C. Bids Jan. 22. CD 1/26, under LB.

▲ **GEORGIA**—State Hy. Dpt., 2 Capitol Square, Atlanta,
Southeastern Highway Constr. Co., Gainesville, Ga., CA **$1,165,015,** 2-lane b. conc. paving 2 bridges and reconstr. 1 bridge, 13.252 mi. Thomason-Washington Rd., McDuffie-Wilkes Co. Line, F 014-1 (7), McDuffie and Wilkes Counties. Bids Dec. 18, awarded Jan. 14. CD 12/24, under LB.

▲ **FLORIDA**—State Road Dpt., Room 228, Holland Bldg., Tallahassee,
Troup Bros., Inc., Box 33168, Miami 33, Fla., CA **$3,108,121,** 4-lane dual roadway facility with in-

terchanges, limerock base, Type 1, b. conc. surf. 2.253 mi. SR 826, (Palmetto Rd.), Job No. 87260-3102, Dade Co. Bids Nov. 19, CD 11/24, under LB.

▲ **ALABAMA**—State Hy. Dpt., Montgomery 4, Bids opened 1/29.

Ala.—**B. F. Williams Constr. Co.**, Ozark, Ala., LB **$616,764**, bit. paving 4.166 mi. U.S. 231 from Florida State Line toward Doathan, Houston Co.;

Ala.—**Ashburn & Gray**, Huntsville, Ala., LB **$544,720**, base and bit. pavement 5.545 mi. U.S. 72 from Huntsville E. toward Scottsboro, Madison Co.;

Ala.—**W. L. Coston & Sons**, First National Bank Bldg., Birmingham, Ala., LB **$747,708**, concrete paving 1.47 mi. U.S. 80 from Mt. Meigs in Montgomery E. to Mitchell Ave. in Dalraida, Montgomery Co. CD 1/20.

▲ **LOUISIANA**—State Hy. Dpt., Rm. 426, Headquarters Admin. Bldg., Baton Rouge, Bids opened 1/27,

La.—**T. L. James & Co., Inc.**, Box 531, Ruston, La., LB **$287,892**, State Rtes. through Farmerville, State Rtes. LA 2, LA 15 and LA 33, SP Nos. 69-02-10, 69-03-08 and 70-04-16, Union Parish; LB **$382,250**, Woodlawn-Lacassine Hy., State Rte. LA 101, SP Nos. 197-30-02 and 209-03-04, Jefferson Davis Parish; LB **$243,601**, Braithwaite Park Subdivision, SP No. 713-07-75 (Royalty Road Fund), Plaquemines Parish;

La.—**Haynes Paving Co.**, Box 509, Winnfield, La., LB **$105,339**, Winnsboro-Big Creek Hy., State Rtes. LA 618 and LA 135, State Proj. Nos. 167-01-07 and 167-02-06, FASP No. S-577(1), Franklin and Richland Parishes; LB **$201,503**, Acme-New Era Hy., State Rtes. LA 129 and LA 909, SP No. 178-01-15, Concordia Parish;

La.—**Atlas Constr. Co., Inc.**, Box 531, Ruston, La., LB **$1,994,428**, Simsboro-Ruston Hy. (Grambling-Ruston) State Rte. I-20, SP No. 451-05-11, FAP No. I-20-2(9)82, Lincoln Parish. CD 12/30;

La.—**Barber Brothers Contg. Co., Inc.**, 2636 Dougherty Dr., Baton Rouge, La., LB **$217,445**, Acy-Duckroost Hy., State Rte. LA 935, SP No. 803-10-09, Ascension Parish. CD 1/13.

Gervais F. Favrot Co., Inc., 330 Balter Bldg., New Orleans 12, La., CA **$775,629**, Prop. 1382, brick, concrete, aluminum siding 400 ton incinerator, NEW ORLEANS, LA. City, Purchasing Div., Rm. 10, City Hall, New Orleans, La. Bids Dec. 21. CD 10/29.

† **TENNESSEE**—Bureau P. Rds. Dpt. Commerce, Gatlinburg,

H. F. Ramsey Co., Inc., P.O. Box 5146, Biltmore Station, Asheville, N. C., CA **$780,720**, crushed aggregate base, bit. surf. treat. box culvert overpass, etc., Foothills Parkway, Proj. 8G1, Bids Jan. 12. CD 1/18, under LB.

BUILDINGS—LB & CA

Graham Bros., Inc., 709 W. Grace, Richmond, Va., CA **$933,400**, TREATMENT CENTER for Children, RICHMOND, VA. Dpt. Mental Hygiene & Hospitals, State Office Bldg., Richmond, Va. Bids Jan. 13, awarded Feb. 2. CD 2/2, under LB.

▲ **Triangle Constr. Co.**, P. O. Box 5395, Station B, Greenville, S. C., CA **$1,475,218**, Northside HIGH SCHOOL, GREENVILLE, S. C. Greenville Co. School Dist. 520, N. Pleasantburg Drive, Greenville, S. C. Bids Jan. 12. CD 1/19, under LB.

▲ **Warr Bros. Constr. Co.**, 217 W. Vineland Ave., Augusta, Ga., Day Labor, **$1,000,000**, 100 RESIDENCES, Forest Park Subdivision, AUGUSTA, GA.

▲ **McDonough Constr. Co. of Georgia, Inc.**, 1958 Monroe Dr. N. E., Atlanta, Ga., CA **$1,000,000**, 160,000 sq. ft. glass bottle mfg. PLANT, FOREST PARK, GA. Knox Glass Corp., c/o contractor.

▲ **Southern Constr. Co.**, Box 1307, Augusta, Ga., CA **$1,154,661**, MEDICAL and SURGICAL BLDG., G. Pierce Wood Memorial Hospital Carlstrom Field, ARCADIA, FLA. Bd. Comrs. State Institutions, Tallahassee, Fla. Bids Dec. 17. CD 12/28, under LB.

Ralph E. Williams, 114 East Woodlawn, Louisville, Ky., CA **$800,000**, 1 story, 100,000 sq. ft. PLANT, BENCHEL, KY. Boone Box Co., 1344 Beech St., Louisville, Ky.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

February 17 Michigan — February 19 Illinois
February 25 Indiana — March 1 Ohio

STREETS AND ROADS

February 17 Michigan — February 19 Illinois
March 1 Ohio

▲† **Illinois**—BA 3/10—U. S. Eng., 420 Locust St., St. Louis 2, Mo., South Pumping Station and Canal No. 1 Pumping Station, East St. Louis and Vicinity Proj. Items III-G and III-E East Side Levee and Sanitary Dist., along north bank Prairie du Pont Creek, near Illinois Rte. 157, approx. 3 mi. from Cahokia, St. Clair Co., CIVENG-23-065-60-36. $1,409,000. Horner & Shifrin, Shell Bldg., 1221 Locust St., St. Louis 3, Mo., consult. engrs. CD 9/17.

HEAVY CONSTRUCTION—LB & CA

▲ **Thompson Constr. Co.**, 3840 Prospect St., Indianapolis, Ind., LB **$970,000**, storm sewers, 46th St. sys., INDIANAPOLIS, IND. Bd. Sanitary Comrs., 421 Pennsylvania St., Indianapolis, Ind. Bids Dec. 15. Moore & Heger, 810 Jersey St., Indianapolis, Ind., engrs. CD 10/14/58.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldg., Springfield,

Ill.—**Eric Bolander Constr. Co.**, Winchester Rd., Libertyville, Ill., CA **$548,361**, 4-span WF beam grade sepa-

MASTER MECHANICS CORNER:

Karl Wernle, Master Mechanic in charge of 250 machines for McDougal-Hartmann Co., Peoria, Illinois, working on Illinois Interstate Highway Rt. 74 at Peoria, Ill.

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Caterpillar Tractor Co., General Offices, Peoria, Ill., U. S. A.

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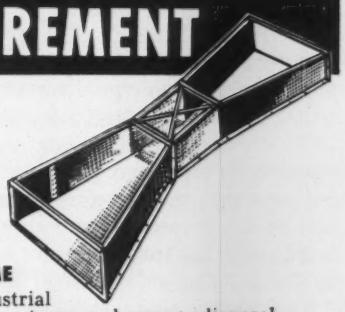

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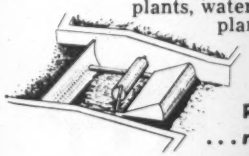

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Ends need for 24-hour supervision—prevents water waste, field flooding, overflow. No floats, sheaves, motors or cables.

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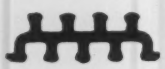
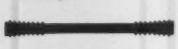
And Water Seals water stops have more miles of proved performance, too! This record, plus the ease of application and the broad variety of shapes and sizes of Water Seals water stops are all the proof you need of their desirability for your own concrete jobs. If you are after truly water-tight sealing between successive concrete pours, be sure to specify Water Seals water stops. They stand up under high temperatures and heads, even under extremes in shifting and stretching. They are unaffected by acids, alkalies, organic chemicals. Full engineering data and dimension drawings available immediately. Use the coupon.



LABYRINTH
Water Stops. Unique, low cost installation! No form splitting required: just nail 'em in place! 2, 3 or 4 rib styles.



FLEXSTRIP
Water Stops. For horizontal or vertical construction joints, especially under extreme conditions of separation. Variety of widths.

CELLULAR
Water Stops. For expansion joints where shearing stress is anticipated. Three rib style most popularly used.

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9 South Clinton Street
Chicago 6, Illinois
Send engineering data and literature on Water Seals water stops.

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ADDRESS_____

CITY_____ STATE_____

ration structure (carrying Ill. Rte. 63 over Ill. Rte. 120) with exception of furnishing, fabricating structural steel, five 1-span rein.-con. slab bridges over channel and reconstr. at intersection Ill. Rtes. 63 and 120 approx. 4 mi. west of Waukegan, Lake Co.

Ill.—**Fruin-Colnon Contg. Co.,** 1706 Olive St., St. Louis, Mo., CA **$1,475,855,** three grade separation structures, incl. 1-span steel WF beam structure carrying westbound East St. Louis Expressway over St. Clair Ave.; 1-span steel plate girder structure carrying Roadway H of westbound East St. Louis Expressway over St. Clair Ave.; 2-span steel plate girder structure carrying St. Clair Ave. over eastbound East St. Louis Expressway, Ramp J and Roadway H, all on St. Clair Ave., East St. Louis, with exception of furnishing, fabricating structural steel, incl. concrete pavement 0.25 mi. five retaining walls, St. Clair Co. CD 1/19, under LB.

Ill.—**C & G Painting Corp.,** 8450 S. Aberdeen, Chicago, Ill., CA **$89,950,** cleaning, painting two steel bridges over Des Plaines River and A. T. & S. F. R.R., U. S. Rte. 45, west of Justice and over Belt Ry. of Chicago on Kedzie Ave. at 75th St., Marquette Park, Cook Co. Bids Jan. 15. CD 1/5.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldg., Div. Hys., Centennial Bldgs., Springfield,

S. J. Groves & Sons Co., 1104 E. Reynolds, Springfield, Ill., CA **$1,965,113,** concrete pavement 2.61 mi. FAI Rte. 70, interchange with Ill. Rte. 157 and frontage roads from west of Collinsville, northeasterly, Madison Co. Bids Jan. 15. CD 1/21, under LB.

▲ **Paschen Contractors, Inc.,** 2739 N. Elston Ave., Chicago, Ill., CA **$1,307,000,** No. 80-187-59-4, WW, Southwest Pumping station, structural steel pumphouse, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. Bids Dec. 28, awarded Feb. 1. CD 1/5, under LB.

▲ **Keno Constr. Co.,** 1800 Skokie Valley Rd., Highland Park, Ill., CA **$1,248,868,** WW, filtration plant alterations, Div. A, structure and equipment, HIGHLAND PARK, ILL. City, City Hall, Highland Park, Ill. Bids Jan. 18, awarded Jan. 25. CD 1/27, under LB.

BUILDINGS—LB & CA

▲ **American Electric Power Service Corp.,** 720 2nd St. S.E., Canton, O., CA design and construct 5,000 kw prototype combination steam and gas turbines, Muskingum River PLANT, BEVERLY, O. Ohio Power Co., 305 Cleveland St. S.W., Canton, O.; **General Electric Co.,** River Rd., Schenectady, N. Y., CA supplying steam and gas turbine (Beverly, O.).

▲ **E. T. Strom,** 5800 8 Ave., Gary, Ind., CA, site preparation for GENERATING PLANT, Burns Harbor, Porter Co., on Lake Michigan, near HAMMOND, IND. Northern Indiana Public Service Co., 5265 Hohman St., Hammond, Ind. Sargent & Lundy, 140 S. Dearborn St., Chicago, Ill., engrs. CD 11/16.

▲ **Seco Constr. Co.,** 2323 W. 47th St., Chicago, Ill. CA **$1,000,000.** PRINTING PLANT alterations and addns., CHICAGO, ILL. I. S. Berlin Press, 3201 N. Kimball Ave., Chicago, Ill. A. Epstein & Sons, 2011 Pershing Rd., Chicago, Ill., engrs. Awarded Jan. 22.

▲ **Power Constr. Co.,** 125 S. Marion St., Oak Park, Ill. CA **$2,618,000** COLLEGE STUDENT UNION, CHICAGO, ILL. Illinois Institute of Technology, 3300 S. Federal St., Chicago, Ill. Bids Jan. 6, awarded Feb. 1. CD 1/20, under LB.

▲ **S. N. Nielsen Co.,** 3059 W. Augusta Blvd., Chicago, Ill. CA **$1,400,000,** WESTLAKE HOSPITAL Addn., MELROSE PARK, ILL. Westlake Hospital, 612 N. 12th Ave., Melrose Park, Ill. Bids Dec. 11, awarded Feb. 1. CD 11/6.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

HIGHWAY LETTINGS

BRIDGES

February 19 Minnesota February 26 Missouri, Oklahoma

STREETS AND ROADS

February 19 Minnesota February 23 Kansas
February 26 Missouri, Oklahoma March 2 Arkansas

▲† **Texas**—BA 3/1—U. S. Eng., P.O. Box 1229, Galveston, 5,000,000 cu. yd. Victoria channel excav., Guadalupe River, levee constr., small drainage structures, Victoria Co., CIVENG-41-243-60-41B, $1,500,000. Plans deposit $5. CD 9/30.

▲† **Colo., Denver**—ACCESS ROAD—BA 3/3—U. S. Eng., 1709 Jackson St., Omaha 2, Neb., access road, Phase II, Lowry Air Force Base, ENG-25-066-60-47. $1,640,000. CD 10/23.

▲ **Minn., Moorhead**—BA 3/9—City, City Hall, 4 m.g. water treatment plant, 23rd St. N. $1,494,000. Foss & Co., 28 N. 3rd St., engrs. CD 10/17/58.

BUILDINGS—BA

▲ **Colo., Fort Collins**—STUDENT CENTER—BA 3/17—Colorado State University, 3 story, 140,000 sq. ft. masonry, stone, steel, glass and tile student center. $3,000,000. James M. Hunter & Assocs., 1126 Spruce St., Boulder, archts. CD 3/26.

▲† **Mo., Fort Leonard Wood**—HOUSING—BA 3/17—U. S. Eng., 1800 Federal Office Bldg., Kansas City, Mo., 800 units Capehart Housing, No. 3. CD 4/8.

HEAVY CONSTRUCTION—LB & CA

▲ **ARKANSAS**—State Hy. Dpt., State Capitol, Little Rock, Bids opened 1/27,

Ark.—**United States Steel Corp of Memphis,** 133 W. Georgia Ave., Memphis, Tenn., LB **$1,207,626** superstructure on 2 bridges in Greers Ferry Reservoir, 1,377

ft. on bridge over Devils Fork and 1,102 ft. on bridge over Little Red River, bridges will be on State Hy. 16, which must be relocated because of Dam and Reservoir Project, Cleburne Co. CD 1/12.

Ark.—**Bucton (CAP BN T) Constr. Co.,** Hazen, Ark., LB **$190,085,** widening bridge and approaches on U. S. Highway 67 over Current river, 8 mi. northeast of Pocahontas, Randolph Co., CD 1/12;

Ark.—**D. F. Jones Constr. Co., Inc.,** Rector Bldg., Little Rock, Ark., LB **$142,030** remodeling 2 bridges U. S. Highway 63, over Cache River and Cache River Slough, at Sedgwick, Green and Lawrence Counties, CD 1/12, under Streets and Roads.

† **Atlantic, Gulf & Pacific Co.,** 905 Citizens State Bank Bldg., Houston, Tex., CA **$717,940,** dredging Houston Ship Channel, Greens Bayou to Washburn Tunnel, Inv. No. CIVENG-41-243-60-23, TEXAS. U. S. Eng., Room 721, Santa Fe Bldg., Galveston, Tex. CD 1/7.

▲† **Cage Brothers,** 6959 San Pedro Ave., San Antonio, Tex., LB **$1,650,429,** est. $2,000,000, 3,400 ft. sea wall extension: Sta. 129/00 to Sta. 163, Galveston, CIVENG-41-243-60-35, TEXAS U. S. Eng, Box 1229, Galveston, Tex., Bids Jan. 21. CD 12/28.

▲† **Raber-Kief, Inc.,** 5939 4 Ave. S., Seattle, Wash., CA **$1,505,218,** modification 400 on-base housing units and 192 off-base housing units for Air Force personnel at Malmstrom Air Force Base, IFB 24-604-60-29, GREAT FALLS, MONT. Base Procurement Office Bldg. T-1308, Malmstrom Air Force Base, Great Falls, Mont. Bids Oct. 29. CD 12/2, under LB.

▲ **NEW MEXICO**—State Hy. Comn., State Hy. Bldg., Cerillos Rd., Santa Fe,

N. M.—**C. R. Davis Contr. Co.,** 1000 Manuel SE, Albuquerque, N. M., CA **$1,722,482,** est. $1,893,452, Lomas Blvd. to Coal Ave., Albuquerque, Proj. No. I-025-4 (12), Bernalillo Co.; CA **$407,221,** est. $422,338, Lomas Blvd. 4th to Central, Albuquerque, Proj. No. U-003-3 (9), Bernalillo Co.,

N. M.—**Brown Constr. Co.,** 3525 4th St. NW, Albuquerque N. M., CA **$482,215,** est. $509,145, NM 61 from Jct. US 260 N. E., Proj. No. S-1112 (2), Grant and Luna Counties.

N. M.—**O. D. Cowart,** 523 Amherst Dr. SE, Albuquerque, N. M., CA **$337,248,** est. $404,562, Milnesand-Bluitt-Stateline, Proj. No. S-1248 (1), Roosevelt Co. Grand total $2,949,166. Bids Jan. 29. CD 1/19.

BUILDINGS—LB & CA

Priester Constr. Co., 601 Brady St., Davenport, Iowa, CA **$750,000,** POWER PLANT addns., DAVENPORT, IOWA, Iowa-Illinois Gas & Electric Co., 205 Perry St., Davenport, Iowa. Awarded Jan. 15.

▲† **Weitz Co., Inc.,** 406 Fleming Bldg., Des Moines, Iowa, LB $2,412,000, (7 bidders), BUILDING ONE addn., alteration, Veteran's Administration Center, DES MOINES, IOWA, Veteran's Admin., Munitions Bldg., Wash., D. C. Bids Feb. 2. CD 11/25.

Swan Constr. Co., 8130 Valcour Ave., Affton 23, Mo., CA **$705,549,** est. $700,000, 1 story, 80,000 sq. ft. JUNIOR-SENIOR HIGH SCHOOL, incl. gym, library, cafeteria, etc., Woods Mill and Ladue Rds., CREVE COEUR (ST. LOUIS 41 P. O.), MO. Parkway Consolidated School Dist., Bd. Educ., Mason Rd. and Daniel Boone Hy., Creve Coeur, Mo. Bids Jan. 25. CD 1/8.

▲ **Consolidated Western Steel Div. of U. S. Steel Corp.,** M & M Bldg., Houston, Tex., CA **$1,100,000,** SULPHUR FILTRATION PLANT, at Spindletop, BEAUMONT, TEX. Texas Gulf Sulphur Co., c/o Houston Club Bldg., Houston, Tex. CD 2/3.

▲ **Hal Anderson & Associates,** 5335 Meaders Lane, Dallas, Tex., Owner Builds, **$1,150,000,** 32-unit Royal Arms APARTMENT, appurtenances, DALLAS, TEX. Cole Smith, 3603 Lemmon Ave., Dallas, Tex., archt. CD 2/3.

▲ **Brown & Root, Inc.,** Box 3, Houston, Tex., CA **$1,250,000,** PLANT, HOUSTON, TEX. River Brand Rice Mills, Inc., 1702 Taylor St., Houston, Tex. CD 2/2.

▲ **Sterns-Rogers Mfg. Co.,** 660 Bannock St., Denver, Colo., CA Est. **$10,600,000,** design and constr. third unit Reeves POWER STATION, near ALBUQUERQUE, N. M. Public Service Co. of New Mexico, 424 Central Ave., Albuquerque, N. M.
Allis Chalmers Mfg. Co., 1126 S. 70 St., Milwaukee, Wis., CA turbo generator (Albuquerque, N. M.).

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
March 2 California
STREETS AND ROADS
February 26 Arizona March 2, 3 California

▲ **Calif., Los Angeles**—BA 2/26—Los Angeles County Flood Control Dist., 2250 Alcazar St., Brown Canyon Storm Drain in Westwood; drain begins in an existing drain in Overland Ave. about 150 ft. north of Pico Blvd., northwesterly to Mississippi Ave., northeast to Prosser Ave., northwest to south roadway of Santa Monica Blvd. and right of way to north roadway of Santa Monico, etc. $2,184,000. CD 11/10/58.

▲ **Calif., San Francisco**—SITE DEVELOPMENT—BA 3/1—Redevelopment Agency, City and San Francisco County, 152 Golden Gate Ave., site development for Diamond Heights Project, incl. 2,000,000 cu. yd. earth moving, street paving, sewers, street lights and utilities. $2,000,000.

BUILDINGS—BA

▲ **Ore., Portland**—STUDENT CENTER—BA 2/25—Bd. Higher Educ., Box 5175, Eugene, student center addn., Portland State College. $1,000,000. Plans deposit $50. Lawrence, Tuker & Wallmann, Failing Bldg., archts. Cooper & Rose Assoc., Builders Exchange Bldg., engrs. CD 10/26.

▲ **Wash., Seattle**—STORE, etc.—BA 2/25—Bittman & Sanders, archts., Securities Bldg., Seattle, Zone 1, 4 story, bsmnt., 106,000 sq. ft., rein.-con., steel frame store and office, with garage, for Washington Securities Co., Securities Bldg. $2,000,000. CD 1/21.

Wash., Seattle—CLUB—BA 2/25—Scottish Rite Temple, 1115 Harvard Ave., 2 story, 34,000 sq. ft., rein.-con., steel frame club, $900,000. Naramore, Bain, Brady & Johanson, 904 7 Ave., archts. CD 9/14.

▲† **Calif., Fort Ord**—HOUSING—BA 3/1—U. S. Eng., 180 New Montgomery St., San Francisco, 500 unit Capehart Housing, No. 3. CD 7/15.

HEAVY CONSTRUCTION—LB & CA

▲† **IDAHO**—Bureau P. Rds., Dpt. Commerce, 609½ Bannock St., Boise,

Goodfellow Bros., Wenatchee, Wash., CA **$1,088,332,** grade and build 12 mi. Lewis-Clark Hy. and 290 ft. bridge, Idaho Co. Bids Jan. 13, awarded Jan. 25. CD 1/19, under LB.

▲ **OREGON**—State Hy. Comn., Highway Bldg., Salem, Ore.—**Rogers Constr. Co.,** 11760 N.E. Glisan St., Portland, Ore., CA **$896,757,** paving, structures, signing 6.1 mi. Hood River-Shogren section Columbia River Hy., Proj. FAIP I-80N(17)61, Hood River and Wasco Counties;

Ore.—**Central Paving Co.,** Box 38, Independence, Ore., CA **$1,092,300,** paving, slide correction, signing 14.1 mi. Davis Slough-Bullards Bridge section Oregon Coast Hy., Proj. FAP F-109(10), Coos Co.;

Ore.—**Roy L. Houck Sons,** 1585 N. 20th St., Salem, Ore., CA **$1,392,693,** paving 5.8 mi. McKenzie River, Proj. FAIP I-5-4(35)193 and I-105-4(104)195 and FAP S-145(7), Lane Co. Grand total $3,381,750. Bids Jan. 21. CD 1/28, under LB.

▲† **K'rst Constr. Co.,** 836 West Woodbury Rd., P.O. Box 556-F, Altadena, Calif., CA **$5,069,037,** San Gabriel River imprvt., Santa Fe to Whittier Narrows Flood Control Basin, CIVENG-04-353-60-11, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Jan. 26. CD 1/29, under LB.

▲† **Montgomery Ross Fisher, Inc.,** 10835 Santa Monica Blvd., Los Angeles, Calif., LB **$1,547,000** (22 bidders), barracks, Marine Corps Air Facility, IFB Spec. 25898/59B, SANTA ANA, CALIF. Dist. P. Wks. Office, Eleventh Naval Dist., San Diego, Calif. Bids Jan. 29. CD 1/12.

BUILDINGS—LB & CA

Paul B. Emerick Co., 7470 S.E. 174th Ave., Portland, Ore., CA **$711,900** (4 bidders), Spencer Butte JUNIOR HIGH SCHOOL, EUGENE, ORE. Lane Co. School Dist. No. 4, 275 7th Ave., Eugene, Ore. Bids Jan. 26. CD 12/11.

▲ **Dalecrest Co.,** Box 609, Canoga Park, Calif., Owner Builds, **$2,182,400,** 152 stucco DWELLINGS, various streets, Tract 21696, CANOGA PARK, CALIF. Duncan & Conroy, 13310 Moorpark St., Sherman Oaks, Calif., archts.

Selten Constr. Co., 339 W. Broadway, San Diego, Calif., Owner Builds, **$760,800,** 67 DWELLINGS, Lily Ave., Camillo Ave. and Clarke Dr., EL CAJON, CALIF

▲ **Dass Constr. Co.,** 5837 El Cajon Blvd., San Diego, Calif., Owner Builds, **$1,753,625,** 105 DWELLINGS, Cowles Mt. Blvd., Torrem St., Berte Dr., Lakeview Estates, Tract No. 2, LA MESA, CALIF.

▲ **Wapner & Fremer,** 5542 Cahuenga Blvd., North Hollywood, Calif., CA **$1,033,900,** modernization bldgs. Fleming JUNIOR HIGH SCHOOL, Lomita, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Dec. 1, awarded Dec. 10. CD 12/7, under LB.

▲ **Butler-Harbour Constr. Co.,** 9741 Lincoln Ave., Anaheim, Calif., Owner Builds, **$2,500,000,** 157 frame, stucco DWELLINGS, Mission Valley, Units 4 and 5, San Luis Rey Section, OCEANSIDE, CALIF.

▲ **Weiss Constr. Co.,** 8271 Melrose St., Los Angeles, Calif., CA Est. **$3,000,000,** 4 APARTMENTS, PALM SPRINGS, CALIF. Trudy Richards Park Imperial, c/o contractor.

▲ **Linde Corp.,** 9808 Wilshire Blvd., Los Angeles, Calif., Owner Builds, **$1,017,200,** 68 DWELLINGS, Exultant Dr., Stalwart Dr., Dauntless Dr., Valor Ave., Helm Pl., Tract 22387; **$1,153,000,** 57 DWELLINGS, Dauntless Dr., Schooner Dr., Tract 22835, PORTUGUESE BEND (R. STA. PALOS VERDES ESTATES), CALIF. CD 6/16.

▲ **Bahar Contr. Co.,** 3247 Village Dr., San Diego, Calif., CA **$1,334,075,** 95 DWELLINGS, Climax Tract No. 2, SAN DIEGO, CALIF. Bamax Assoc., 3247 Village Dr., San Diego, Calif.

▲ **Larvey Constr. Co.,** 3247 Mission Village Dr., San Diego, Calif., CA **$935,257,** 74 DWELLINGS, Mobley and Dolly St., Mission Village Annex, No. 3 Tract, SAN DIEGO, CALIF. Logan Assoc., 3247 Mission Village Dr., San Diego, Calif.
Excelsior Constr. Co., 6651 Foothill Blvd., Tujunda, Calif., CA **$414,700,** 24 stucco DWELLINGS, Estepa Dr., Glory Ave., Haines Canyon Ave. and Cordero Ave., TUJUNGA, CALIF. Teoro Development Corp., 6651 Foothill Blvd., Tujunga, Calif.

Barrett Constr. Co., 1800 Evans, San Francisco, Calif., CA **$869,000,** 6 story, rein.-con. St. Mary's Hospital PSYCHIATRIC WING addn., SAN FRANCISCO, CALIF. Bd. Directors, St. Mary's Hospital, Hays and Stanyan Sts., San Francisco, Calif. Bids Jan. 20. CD 1/27, under LB.

▲ **C, K, F-M,** 3911 Pacific Highway, San Diego 1, Calif., LB **$3,036,000,** general work, 1st Phase Ventura SCHOOL FOR GIRLS, Department Youth Authority, VENTURA, CALIF. State Div. Architecture, 1100 S. Grand Ave., Los Angeles, Calif. Bids Jan. 27. (**Correction**—contractor.) CD 1/29, under LB;
E. O. Nay Co., 2014 E. Colorado St., Pasadena, Calif., LB **$1,191,474** (8 bidders), mechanical work, 1st Phase, Ventura School for Girls, Dpt. Youth Authority (Ventura, Calif.).

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
February 17, 23 British Columbia

▲ **Ont., Toronto**—SUBWAY—BA 2/15—Toronto Transit Comn., 1900 Yonge St., 2,900 lin. ft. subway structure, two finished station sections, Bloor-Danforth-University Subway. Stage 1, Contract U-1. Plans deposit $100. Extended date. Norman D. Wilson Consulting Engineer, 128 Glen Rd., and DeLeuw, Cather & Co. of Canada Ltd., 52 St. Clair Ave. E., engrs. W. S. Atkins & Assocs., Ltd., 33 Price St., Toronto, engrs. for tunnel work. John B. Parkin Assocs., 1500 Don Mills Rd., consult. archts. CD 1/6.

HEAVY CONSTRUCTION—LB & CA

▲ **Dell Constr. Co. Ltd.,** 2461 Bloor St. W., Toronto, Ont., CA **$3,087,344,** 300 housing units, related services Royal Canadian Air Force Station, GREENWOOD, N. S. Central Mortgage & Housing Corp., 1032 Gottingen St., Halifax, N. S. Bids Jan. 7, awarded Feb 1. CD 1/19, under LB.

BUILDINGS—LB & CA

▲ **Ralph N. Parsons Co., of Canada Ltd.,** 170 University St., Toronto, Ont., CA Est. **$3,000,000,** design and construct 10,000 bbl. crude oil processing, gas treating and sulphur recovery PLANT, INNISFAIL, ALTA. Innisfail Operators Committee, c/o Canadian Oil Companies, Ltd. 631 7th Ave. S.W., Calgary, Alta. CD 11/23.

▲ **Dawson & Hall Ltd.,** 775 Clark Dr., Vancouver, B. C., LB **$2,767,425** (11 bidders), 3 rein.-con. MEDICAL SCIENCES, University of British Columbia, VANCOUVER, B. C. Dpt. P. Wks., Parliament Bldgs., Victoria, B. C. Bids Jan. 28. CD 1/7.

▲ **Pearson Constr. Co. Ltd.,** 1019 Erin St., Winnipeg, Man., CA Est. **$1,000,000,** (6 bidders), HOSPITAL addn. DAUPHIN, MAN. Dauphin General Hospital, Dauphin, Man. Moody, Moore & Partners, 295 Broadway, Winnipeg, Man., archts. CD 3/17/58.

▲ **Cape-Tidewater Constr. Co.,** 4898 Western Ave., Montreal, Que., CA Est. **$13,000,000,** 350 ton daily bleached sulphite PULP MILL, POINT TUPPER, N. S. Nova Scotia Pulp Ltd., 140 Hollis St., Halifax, N. S. CD 9/23, under Nova Scotia.

▲ **Eastern Constr. Co. Ltd.,** 414 Mount Pleasant Rd., Toronto, Ont., CA Est. **$1,500,000,** 3 story, 200 x 242 ft., poured slab, YM & YWHA branch, TORONTO, ONT. YM & YWHA, 750 Spadina Ave., Toronto, Ont. Bids Nov. 25, awarded Jan. 29. CD 11/16.

▲ **Redfern Constr. Co. Ltd.,** 88 Laird Dr., Toronto, Ont., CA Est. **$2,500,000,** 3 story, 175,000 sq. ft., concrete SERVICE CENTRE, TORONTO, ONT. Toronto Hydro-Electric System, 14 Carlton St., Toronto, Ont. Bids Jan. 13. CD 12/31.

LATIN AMERICA

BUILDINGS—LB & CA

▲ **Austin, Ingenieria y Construcciones, S.A. (sub. Austin Co., Cleveland, O.),** Avda Pte Julio A Roca 610, Buenos Aires, Argentina, CA Est. **$12,500,000,** design and construct TRUCK and ENGINE PLANT, BUENOS AIRES, ARGENTINA. Ford Motor Co., The American Rd., Dearborn, Mich., U. S. A. CD 4/27.

▲ **Austin, Ingenieria y Construcciones, S.A. (sub. Austin Co., Cleveland, O.),** Avda Pte. Julio A Roca 610, Buenos Aires, Argentina, CA **$8,000,000,** design and construct 30,000 sq. ft. AUTO and TRUCK PLANT addn., BUENOS AIRES, ARGENTINA. Chrysler Corp., 341 Massachusetts Ave., Highland Park, Mich., U. S. A. CD 9/28.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **Belgian Congo, Kindu**—BA 4/1—L'Agence Coloniale des Approvisionnements, 1 rue de la Regence, Brussels, Belgium,
bridge over Luababa River, Public Tender 10-62-59. $1,300,000. Plans deposit $30.

BUILDINGS—BA

▲ **Belgian Congo, Elizabethville** — MILITARY CAMP IMPRVS.—BA 2/26—Conseil des Adjudications du Gouvernement General, Batiment Administratif, Rm. 2117, Leopoldville/Kalina, constr. works at Kibembe Military Camp, Public Tender 57-081-59. $1,098,680. Plans deposit $17.

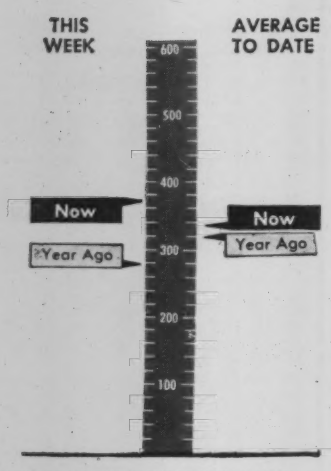
HEAVY CONSTRUCTION—LB & CA

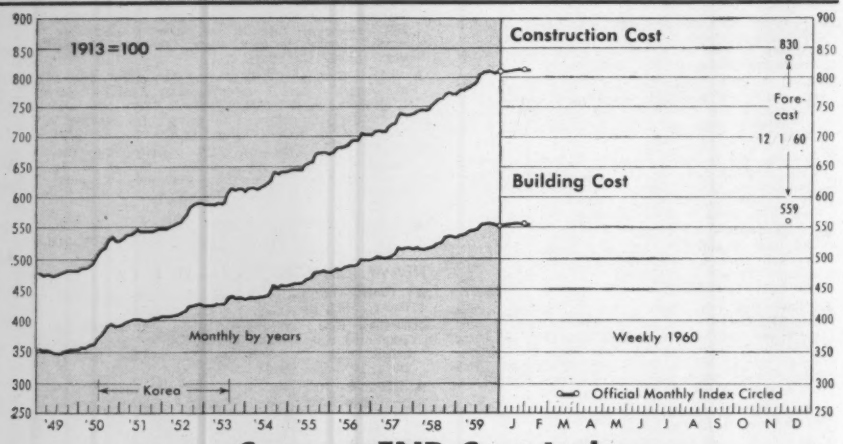
▲ **Ponorsko Gradevne Podazece,** Split, Yugoslavia, CA Est. **$9,200,000,** port, incl. 3,200 meter jetty, 1,500 meter jetty and 660 meter quay on Mediterranean, TARTOUS, SYRIA. Syrian Executive Council, Damascus, Syria.

(Proposal Advertisements see pp. 91 to 93)

Construction Scoreboard

Contracts...





AMOUNT OF CONTRACTS LET

	This Week	Cum. 6 wks* 1960	Chge '59-'60 %
	millions		
All Heavy Constr.	$374.8	$2,017.3	+ 5
By Ownership			
PRIVATE	200.0	1,067.3	+27
PUBLIC	174.8	950.0	−13
State & Municipal	147.8	724.5	− 5
Federal	27.0	225.5	−30
By Type of Work			
PUBLIC			
Waterworks	6.3	30.8	−36
Sewerage	10.9	72.7	+15
Bridges*	15.5	75.0	− 8
Highways	69.5	282.5	− 4
Earthwork, Dams & Waterways	14.0	87.4	+46
Buildings:			
Excl. Housing	37.5	192.8	−35
Housing	14.4	76.5	+51
Unclassified	6.7	133.6	−31
PRIVATE			
Buildings:			
Mass Housing	93.2	442.9	+31
Commercial	30.8	228.9	+ 8
Industrial	59.3	329.3	+35
Unclassified	16.7	64.9	+41

*Includes private bridges
*Revised to include Alaska and Hawaii

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

CAPITAL . . .

New Capital For Construction	Week of Feb. 4	Cum. 5 wks 1960	Chge '59-'60 %
	millions		
Corporate Securities	$ 38.1	$ 166.0	−49
State and Municipal:			
All Except Housing	89.7	838.1	+66
Housing	....	0.6	−54
Federal Loans	1.0	4.4	−15
Federal Aid	....	....	....
Total Nonfederal	$128.8	$1,009.1	+18
Federal Appropriations:			
Projects in U. S.	....	....	....
Outside U. S.	....	....	....
Total New Capital	$128.8	$1,009.1	+18

Current ENR Cost Indexes

ENR INDEXES (1913=100), 20-cities' average	Week of Feb. 4 1960	% Change from Jan. 7 1960	% Change from Feb. 5 1959
Construction Cost	812.82	+0.04	+4.26
Building Cost	555.32	+0.15	+3.20

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

CONTRACTS AWARDED

	1960 Jan. (millions)	1960 1-Mo. (millions)	Percent Change from 1959 Jan.	Percent Change from 1959 1-Mo.
Total U. S.† (ENR reported)*	$1,265.1	$1,265.1	−29	−29
Private	670.5	670.5	− 7	− 7
Public	594.5	594.5	−44	−44
State and Municipal	418.7	418.7	−39	−54
Federal	175.9	175.9	−54	−54
ENR Volume Index, 1913=100	432	432	− 6	− 6

NEW CONSTRUCTION CAPITAL

Total U. S.†	$880.4	$880.4	+ 3	+ 3
State and Municipal Bond Sales	749.0	749.0	+49	+49
Corporate Security Sales	127.9	127.9	−63	−63
Federal Loans, Aid (nonfederal work)	3.5	3.5	−34	−34
Federal Appropriations, (federal work)	.....	.....	....	....

* Includes funds for outside U. S.
† Includes Alaska and Hawaii

MATERIALS SHIPMENTS

	1959 Oct. (O) Nov. (N) Dec. (D)	1959 Cum. (No. of Mos.)	Percent Change from Year Ago Mo.	Percent Change from Year Ago Cum.
Portland Cement, Bur Mines, thous bbls	20,328(D)	335,036(12)	+22	+ 9
Concrete Paving Awards, PCA, thous sq yd	6,689(D)	93,361(12)	−35	−23
Fabricated Structural Steel, thous tons	236(D)	2,904(12)	−12	−21
Bookings, AISC, thous tons	366(D)	3,223(12)	+86	+16
Reinforcing Bars, Net, AISI, thous tons	163(N)	1,961(11)	+ 7	+ 4
Lumber, NLMA, mil fbm	2,804(D)	36,154(12)	+ 5	+ 7
Orders, mil fbm	3,041(D)	36,006(12)	+ 8	+ 7
Production, mil fbm	2,947(D)	36,934(12)	+ 9	+10
Clay Products, Bureau of Census				
Brick, Unglazed, Common, Face, mil bri	654.2(O)	6,238.3(10)	− 6	+14
Vitrified Clay Sewer Pipe, thous tons	185.9(O)	1,692.5(10)	− 2	+13
Structural Tile, Unglazed, thous tons	44.5(O)	450.0(10)	−18	− 2
Asphalt Products, Bureau of Census				
Asphalt Roofing, thous sales sqs	3,771.3(N)	56,939.7(11)	− 2	+ 2
Asphalt Siding, thous sales sqs	77.1(N)	901.2(11)	−20	− 8
Aluminum, Wrought, Net, Bur Census				
Sheet and Plate (non-heat treatable), mil lbs	92.9(N)	1,176.1(11)	+18	+36
Wire and Cable, mil lbs	20.5(N)	297.7(11)	+15	+22
Extruded Shapes (soft alloys), mil lbs	74.2(N)	855.0(11)	+20	+32

EMPLOYMENT AND FAILURES

Contract Const Employment, BLS, thous	2,677(D)	2,763(12)**	+ 8	+ 4
Contractor Failures, Dun & Bradstreet				
Number	163(D)	2,064(12)	− 7	− 5
Liabilities, thous	$10,453(D)	$121,882(12)	+ 4	+ 6

** Average per month

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States Walk the Budget Tightrope

Several state legislatures are again wrestling with annual budgets in an attempt to balance outlays with income. Budgets in three of the largest states—New York, New Jersey and California—are built along pay-as-you-go lines.

California's budget of $2.48 billion is the largest. It also provides the most money for construction—$443 million.

Highways and bridges take the lion's share of the total construction proposals with a total of $248 million.

Other major outlays include $51 million at University of California campuses; $41 million for state college buildings, including the new Alameda and Orange County State Colleges; $10 million for mental hospitals; $17 million for prisons; $6 million for Youth Authority institutions; and $11 million for beaches and parks.

Also included is $34 million for water development projects, pending a decision by voters in November on the $1.75-billion water resources development bond issue.

The funds budgeted for water projects would allow work to continue on railroad and highway relocations at the Oroville Dam on the Feather River. The money would also pay for construction of a feeder canal to San Joaquin Valley, where the main canal will carry water to Southern California. Construction would continue on the South Bay Aqueduct, a unit of the system to supply water in Alameda and Santa Clara counties.

Gov. Edmund "Pat" Brown notes that even though no large spending programs are adopted the state will be hard-pressed to remain in the black.

New York's Gov. Nelson A. Rockefeller proposes new appropriations of $275.6 million for capital construction in the 1960-61 fiscal year.

The new-appropriation total, however, is not all that would be available to buy construction. In addition, the state has unobligated reappropriations and federal-aid reappropriations of $663 million. This provides a potential capital construction program of $939 million. It would be spread over three years, paid out as projects are put in place and progress payments made.

Boosted by 21% was the amount allocated in the budget for highways. Governor Rockefeller recommended appropriation of $150 million, a $26.5-million increase over the amount budgeted in 1959-60 fiscal year.

The higher amount will partially offset a drop in federal-aid funds during the new federal fiscal year. The amount will be $142 million instead of the $180 million originally scheduled for the state by the U. S. Bureau of Public Roads.

New Jersey's budget calls for spending $431.4 million in the fiscal year starting July 1. Of that, $50 million, 16% would go for capital expenditures.

Highways would claim the largest amount, $46 million. In addition, there will be $72 million in federal aid to bring to $118 million the amount available for highway construction.

Gov. Robert B. Meyner cited other needs, but provided little money.

He recommended that the State Teachers Pension and Annuity Funds could finance a new State Education Department building.

He also suggested that a boost of one cent per pack on cigarettes would provide $8 million a year. That would be sufficient to pay for a $30-million institution for mentally retarded children and a medium-security prison.

Vermont, in an unprecedented session adjourned from last year, had smaller figures to deal with. It needed an additional $1.3 million for highways for the biennium ending June 30, 1961.

To obtain it, the legislature voted a 2% motor vehicle excise tax effective March 1. The bill, signed into law last week by Gov. Robert T. Stafford, is expected to raise $1.2 million.

The tax will apply to all vehicles costing up to $7,500.

The $7,500 ceiling provides some protection to contractors whose trucks and other equipment cost more than $7,500.

No attempt was made to deal with the state's long-range highway financing needs of an additional $10 million a year starting in fiscal 1962. Most of that amount is required for the Interstate.

That will be a problem to be solved in 1961. The state has announced that to obtain the $10 million it will need in each year 1962 to 1965, gas taxes and registration and license fees will have to be increased.

West Virginia must also find funds to keep its highway program going and to develop natural resources. The latter would provide temporary relief for some of the state's 72,000 unemployed.

Gov. Cecil H. Underwood proposes that at least $8 million be raised by new taxes. The funds would be used for land reclamation, state park development and forestry.

Other proposals are:

- A constitutional amendment to authorize $200 million worth of bonds to finance construction of roads.
- Issuance of revenue bonds to pay for construction at West Virginia University and 10 state colleges. It's estimated that student fees would be sufficient to back $15 million worth of building bonds.

Contractor Out as Redeveloper

A construction company has learned that sponsorship of an urban redevelopment project isn't easy. It takes cash, even though the job is in your own town.

F. H. McGraw & Co. of Hartford could not raise the $2.8 million needed to buy the redevelopment site in Hartford. Sponsorship is now in the process of being transferred to a new corporation, subject to approval of the Urban Renewal Administration.

McGraw was selected as sponsor in 1958 (ENR July 24, 1958, p. 81). Title to the 11-acre tract was to be transferred by the city to McGraw last December 31. On that date, the McGraw company did not have the money. It received an extension to January 31.

But before that deadline, the Hartford Redevelopment Agency received McGraw's request for reassignment of the agreement. With the request was an offer by Travelers Insurance Co. of Hartford to finance the project.

The new sponsor, Constitution Plaza, Inc., is capitalized at $6 million. Travelers will buy $4 million of stock.

The McGraw company is not out entirely, however. It will receive $650,000 worth of the development corporation's stock as reimbursement for expenses and transfer of a $250,000 deposit McGraw paid to the city.

Clifford S. Strike, president of McGraw is a member of the six-man board of directors. And according to an officer of the new corporation, "It is expected that the F. H. McGraw & Co. will be general contractor" for all but one building in the site. Contract for the $2-million building is held by Lewis C. Bowers & Sons of Princeton, N. J. That building and several other structures, including a 16-story building, will be started this month and next.

Will Small Cars Cut Road Funds?

The boom in sales of small cars has given federal and state highway officials something to worry about: Some of the financial base may be melting away from under their road programs.

Bulk of the federal contribution to roadbuilding comes from the four-cent-a-gallon gasoline tax, all of which is earmarked for that purpose. State levies on gasoline average slightly more than six cents a gallon, most of which goes into roadbuilding.

The trend to small cars, with their increased gas economy, could very well bring a significant drop in gas sales, a significant drop in tax revenue. Large-scale production of small cars in the U. S. is now only in its first year; it's too early to measure the effect on gas sales. But it's not too early to note that many in the petroleum industry are frankly pessimistic.

The automotive industry last month pushed nearly 158,000 compact models off the production lines. That's 23% of total domestic automobile production in January. Imported small cars—the little bugs that first put a big bug in Detroit's ear—are selling here at a rate of about 600,000 a year. Together, domestic and foreign economy cars are expected to account for between 25% and 30% of the 6.5 million to 7 million automobiles sold in the U. S. this year.

Long-term projections are even more bullish. Some automobile executives say that in the next 10 years 30 million of the 70 million cars sold will be economy models.

The problems presented by the possibility of lower gasoline tax revenue are compounded by the method used by most highway officials to estimate income when planning future expenditures. Estimates are generally based on the average gasoline consumption of automobiles in recent years and on projections of greater auto ownership and use in the future.

But the consumption figures highway departments are now working with were racked up by Detroit's gas-hungry behemoths of yesterday, not by the compacts of today and tomorrow.

As their avant-garde drivers take every opportunity to mention, small foreign cars go between 25 and 40 miles on a gallon of gas; the new U. S. compacts are rolling between 22 and 32 miles on a gallon; the standard U. S. models have been traveling 18 miles or less on a gallon.

But even on standard models, Detroit this year is selling and designing economy, downgrading speed and power. Changes in design and lowered horsepower are decreasing the gas consumption on models in the medium-price field.

Should income from gas taxes fall off, a natural government response could be even higher taxes. Even now, the Administration is asking Congress to restore the extra half-cent-a-gallon levy that went by the boards in last year's "compromise" bill for Interstate financing. But there are indications that more taxes would eventually bring even greater consumer demand for economy cars.

Electric Firms to Lift Outlays

Expenditures by the electric utilities industry are expected to hit a near record in 1960. The forecast is made by ELECTRICAL WORLD, a McGraw-Hill publication.

Outlook now is for $4,900 million worth of construction this year. The estimate is higher than the one reported by the same publication in September, when the forecast for 1960 was $4,652 million.

The last forecast is 5% above expenditures of $4,669 million in 1959, and almost equal to the peak year of 1958, when electric utilities spent $4,906 million.

Generation expenditures, however, will dip 4% to $2.3 billion this year. This is 12% under the 1958 high of $2.6 billion. But transmission plant outlays will set a record of $813 million, up 15% over 1959. The climb is partly a result of delays caused by the steel strike last year.

Distribution is slated to get $1.6 billion of total outlays. This is 13% above 1959, and reflects expected higher sales to residential and commercial customers. Miscellaneous expenditures for new office buildings, warehouses, office equipment, vehicles may total $209 million, 16% above 1959.

Economy's Health Is Good, But Some Dissent Is Heard

The Joint Economic Committee of Congress last week was told by economists from industry and labor that the nation's economic health is good. There was one voice of dissent, however, and that came from a representative of construction.

George Cline Smith, chief economist for F. W. Dodge Corp., warned that a dip in housing could pull total construction 1% below 1959. He added that if industrial building should hit a dip in its cyclical swings simultaneously with housing, the result could be serious.

(Mr. Smith speaks of construction put in place in his predictions; ENR's estimate of contracts for industrial building for 1960 puts the total 35% above 1959.)

The committee also got another view of the mortgage financing picture. It was provided by Roy L. Rierson, vice president and chief economist of the Bankers Trust Co. of New York.

Mr. Rierson agreed that over the long run mortgage credit does fluctuate, but he believes that's a healthy way to moderate business cycles.

Citing the growth in funds made available for housing between World War II and last year, he indicated the housing industry does well in the competition for credit, and basic rule changes are unnecessary.

Engineering Firm Answers $10.7-Million Damage Suit

Hydrocarbon Research, Inc., New York City engineering company, has denied all charges brought in a $10.7-million damage suit by an agency of the Formosan government. The categorical rejection is contained in an answer filed recently in U. S. District Court at Trenton.

The Formosan agency, Taiwan Fertilizer Co. of Tapei, charged in its suit that a $25-million to $30-million fertilizer plant designed and constructed by Hydrocarbon was producing at a far lower rate of capacity than specified (ENR Oct. 29, 1959, p. 87). The plant was constructed with U. S. foreign aid funds.

Hydrocarbon says the allegations are "sham and false in fact and insufficient in law to constitute a cause of action."

Since World War II, mortgages accounted for 55% of the growth in long-term credit, with the proportion rising to 60% in 1959, he said.

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About Gilbane . . .

Project Turnkey, one-third of which is shown above, is the world's first fully mechanized post office, built at their home base, Providence, Rhode Island, by Gilbane Building Company, one of the nation's largest builders. Operating over most of the Eastern half of United States, recent projects include Eastern Airlines' $17,000,000 Terminal at Idlewild, New York's International Airport for which they brought construction materials from as far as Algeria and Sweden. Its lobby alone is larger than the Madison Square Garden Arena.

Maritime Towers, Norfolk's tallest office building; General Motors' $40,000,000 Fisher Body plant in Ohio, built in 11½ months; IBM's $24,000,000 electric typewriter plant in Kentucky; the National Life Insurance Home Office Building in Vermont; a new motel in Florida — these illustrate the range and scope of Gilbane's skills.

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Their home office is at 90 Calverley Street, Providence 8, Rhode Island.

Construction Daily
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Dept. ENR 106 330 West 42 Street, New York 36, N. Y

Industry Seeks End to Strikes

- **Construction labor and management have come up with a significant proposal that could eliminate strikes over labor contract issues.**
- **The plan, drafted by the Construction Industry Joint Conference, seeks peaceful settlement of disputes through a new joint board.**
- **In another step toward labor peace, unions and employers at Miami meeting suggest a legislative compromise on the boycott bills.**

The AFL-CIO building trades unions, meeting for the last time under the leadership of Richard J. Gray, set their sights last week on closer working harmony with employers in the construction industry.

In joint meetings with industry employer groups, the unions' leaders agreed in principle to a plan that could, in time, eliminate strikes in the construction industry.

And in the hope of avoiding some anticipated labor trouble when construction contracts are negotiated this spring, they discussed with employers a possible compromise plan for Taft-Hartley legislation in the current session of Congress.

The developments grew out of the AFL-CIO Building and Construction Trades Department mid-winter meeting in Miami Beach, where leaders of the federation's 17 construction unions spent a week in conferences among themselves and with members of the nation's leading contractor groups.

At the end of the session, Mr. Gray, who has headed the department since 1946, announced his retirement, effective March 1. The resignation of the 72-year-old labor leader has been the subject of frequent rumors in the past, but the Miami announcement surprised craft union leaders (see p. 90).

Last week's labor-management harmony meetings coincided with, or perhaps were a forerunner of, the labor-management peace conference idea originally proposed by AFL-CIO President George Meany and endorsed by the Eisenhower Administration.

Labor Secretary James P. Mitchell told the building trades' leaders in Miami that joint conferences would be set up this spring to try and bring harmony out of the bitterness that has developed between unions and employers over the past year.

Contractors and union leaders conceded that the interests of the construction industry were involved along with those of other industries. Much of their conversation centered on attempting to alleviate the strife that has grown rapidly from the time they opposed each other on last year's Landrum-Griffin labor law.

The no-strike plan is being worked out by the Construction Industry Joint Conference, which was formed last year by the international unions and national contractor associations. The conference was designed as a continuing forum for labor-management discussion of mutual problems and seeks to promote the interests of the industry and of the public. One of its big tasks has been promotion of the contract system.

The strike ban is directed at halting all construction work stoppages to eliminate the waste and costliness of such strife. Along with the legislative plan, the goal is to work out something before a rash of spring disputes hits the industry.

The plan at the present time is tentative. As now proposed, its broad outlines look like this:

- A national joint appeals board would be created to hear all disputes between contractors and local unions that could not be settled by negotiation.
- The appeals board would be composed of panels of labor and management representatives. It would have 30 days to rule on a dispute. An impartial panel chairman would sit in on each session of the board.
- The plan would cover all disputes over negotiation of wage contracts and interpretation of contracts. It would also cover formulation of a uniform labor policy for all crafts.
- Collectively bargained labor contracts would specify that all disputes should be taken to the appeals board.
- The parties, in submitting a dispute to the board, could decide whether the dispute should be arbitrated or settlement terms recommended.
- The plan would be voluntary. Like the National Joint Board for the Settlement of Jurisdictional Disputes, which would remain undisturbed, and like the "Ten Commandments," effectiveness of the plan would depend on the degree of local acceptance and compliance.

While the no-strike plan is still in first-draft form, the next step will be its circulation among local union and contractor groups. Present indications are that it will be several months before the plan can be adopted even if no bottlenecks occur.

The discussions of a common legislative approach to Taft-Hartley problems centered not around the CIJC, but around Harvard University professor John Dunlop, who is impartial chairman of the CIJC Administrative Committee.

The hope expressed in Miami is to arrange a compromise legislative approach to a change in the Taft-Hartley rules on the picketing of construction sites.

In the union campaign to remove construction site picketing from the secondary boycott ban, Mr. Gray has secured pledges from leaders of both political parties to vote on the subject during this session of Congress. While the Gray plan would permit all such picketing, the Dunlop discussions involve a toned-down version that contractors might not oppose so vigorously.

The Landrum-Griffin law lends the issue a sense of urgency.

Feeling on the part of both labor and management is that the Landrum-Griffin rules, which permit unions to demand that employers refuse to deal with nonunion contractors, will stir up trouble.

Such a demand, while legal under the construction industry's exemption from the hot-cargo ban cannot be enforced

by the union. At least that is the view of the conference members who put the law together, although no one is sure what the law means. Industry members expect an outburst of labor disputes over the issue unless it is ironed out in further legislation.

The long-range, no-strike plan to end all contract disputes could be more successful than the legislative arrangement. Both sides are openly backing the idea.

What effect Mr. Gray's retirement will have on the legislative program of the building trades is still unknown. The resignation becomes effective just before the opening of the department's annual legislative conference in Washington, D. C.

Some of the mid-winter meeting participants felt that a legislative approach other than the departmental one used in the past might be more effective.

After 56 years of service . . .

Gray Ends Long Union Career

When Richard J. Gray steps down from the presidency of the AFL-CIO Building and Construction Trades Department on March 1, he will have completed 56 years of union service that began as a bricklayer in Albany, N. Y., where he was born Dec. 6, 1887.

After serving as president and business agent of his local union, Mr. Gray moved up to the international level. He was treasurer and then secretary of the Bricklayers, Masons and Plasterers' International Union until his election as president of the Building Trades Department of the old AFL in 1946.

Since the labor merger, he has fought vigorously—but within the framework of labor unity—to protect the jurisdictional interests of the building trades unions. And he was one of the first to see the need for contractor support of the contract system in the long feud between craft and industrial unions—support that has now materialized in the Construction Industry Joint Conference.

Throughout his career as a labor leader, Mr. Gray has sought to promote greater stability in labor relations and wider recognition of the common interests of labor and management.

These have been the common threads in his promotion of project labor agreements and in his past proposals for a joint labor-management conference, separate labor legislation for the construction industry in his 1958 wage freeze proposal.

Mr. Gray, in announcing his retirement in Miami Beach last week, said he was resigning because of his age and his wife's illness.

His successor will be appointed by the department's Executive Council, which consists of the president and 10 vice presidents of the department.

Unions Lose Members

Labor Department finds a 400,000 drop since 1956

Dues-paying membership in the 186 national and international unions headquartered in the U. S. has declined, according to the U. S. Labor Department's Bureau of Labor Statistics.

Reversing a trend that has existed for two decades, the unions lost 400,000 members between 1956 and 1958.

The bureau puts 1958 union membership at 18.1 million, including 1.2 million members outside the continental U. S. and 113,000 members in federal labor unions and local unions directly affiliated with the AFL-CIO. Of the total national and international membership, 12.9%, or 2,324,000 members, were in the construction industry.

The proportion of union members in the labor force, however, remained the same—one out of four.

Bulk of the union members—15 million—were in the AFL-CIO. The rest were in unaffiliated unions, such as the teamsters and mine workers which accounted for 3.1 million.

More than two-fifths of all union members were associated with three major industry groups—construction, transportation, metals and machinery. And about half of the AFL-CIO membership was concentrated in New York, California, Ohio and Illinois.

Similar concentration of union strength appeared in the relative sizes of individual unions. In 1958, 14 of the 186 unions had one-half of all the union members. And the 10 largest unions, which included four in the construction industry, accounted for 44% of the total union membership.

Ten of the construction unions had memberships in excess of 100,000. They were: teamsters, 1,418,000; carpenters, 835,000; electrical workers, 750,000; laborers, 476,598; operating engineers, 280,000; plumbers, 255,800; painters, 184,502; bricklayers, 159,126; iron workers, 152,389; boilermakers, 132,356.

Teamsters ranked first in size of all the 186 unions. Carpenters were fifth, electrical workers sixth, laborers eighth.

The composition of the 186 national and international unions accounted for by the bureau explains some of the complexity of American labor relations. There were 78,110 local unions within these unions in 1958.

One of the results is a multiplicity of bargaining situations. The bureau estimates that the number of labor contracts in existence in the U. S. exceeds 150,000.

Area Bargaining Called Beneficial by Teamsters

Use of area agreements is one of the keys to economy and efficiency in the negotiation and administration of labor contracts, according to the International Brotherhood of Teamsters.

In a re-evaluation of what such agreements have achieved for teamster members—and for employers—union officials have pointed to a number of advantages that are being increasingly recognized by members of the construction industry. Among them are these:

- Area agreements can reduce or eliminate wage differentials within a given area.
- They help to stabilize management operations insofar as wage rates and working conditions go. (The epitome of this search for stabilization appears in the construction industry's national labor agreements.)
- Through the pooling of pension and welfare funds, they lead to economies in fringe benefit operations.
- The system of area bargaining allows local unions to pool their strength and their resources. It works the same way for employers.

General interest in area bargaining for members of the construction industry has gained momentum over the years through the increasing complexity of labor relations. And passage of the Welfare Fund Disclosure and Landrum-Griffin laws has increased the interest, as unions and employers seek to ease and simplify the burdens imposed by the laws' reporting and bonding requirements.

Pay of Nonunion Workers Is Increased in Hawaii

The General Contractors Association of Hawaii has announced wage increases effective February 15 for nonunionized employees of its member firms.

Unskilled and semi-skilled workers will receive an increase of five cents an hour. Skilled workers will get 15 cents an hour.

Association members employ somewhat less than half of the 13,000 construction workers in the state.

The following scales will apply when the new rates go into effect: Common laborers, $2.10; construction laborers, $2.30; utility pickup truck drivers, $2.30; truck drivers of heavier equipment, $2.75; carpenters, $3.10; cement finishers, $3.10.

The association said the new scales are based on local rates, averages of rates paid in 100 other U. S. cities, increased living costs and contracts negotiated by unions in Hawaii last year.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record
P.O. Box 12, New York 36, N. Y.

Bids: February 23, 1960

Sluice Gate and Stop Shutters

CONTRACT 467

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time on Tuesday, February 23, 1960, for Contract 467, for furnishing, testing, and delivering one 6-foot by 15-foot broome type sluice gate, three 6-foot by 15-foot stop shutters, and one stop shutter lifter, together with their appurtenances, complete in every respect and ready for installation in the Intake Works of the West Delaware tunnel, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of twenty-five thousand dollars ($25,000.00), for the proper execution of the Contract.

Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in the Secretary's office, Room 1312, at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the Contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars apply at the office of the Chief Engineer at the above address.

ARTHUR C. FORD, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners; Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: February 19, 1960

Marine Terminal-Construction of Substructure City of Pensacola and Pensacola Port Authority Pensacola, Florida

THE CITY OF PENSACOLA

Sealed proposals will be received by the City Manager, of the City of Pensacola, Florida, at his office in the City Hall, until 10:00 AM C.S.T., FEBRUARY 19, 1960 at which time they will be publicly opened and read.

Plans, specifications, and contract documents are open to public inspection at the office of the City Engineer, in Room 300, City Hall, Pensacola, Florida and the office of Fredrick R. Harris, Inc., 144 East 44th Street, New York 17, N. Y. or may be obtained upon deposit of fifty dollars ($50.00).

The full amount of deposit will be returned upon return in good condition of all documents within ten (10) days after the date of opening bids.

Bids must be accompanied by a certified check or bid bond in an amount not less than five percent (5%) of the bid.

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of sixty (60) days.

Award will be made to the lowest responsible bidder.

The owner reserves the right to reject all bids and to readvertise.

OLIVER J. SEMMES, JR.
CITY MANAGER

ATTEST:
CHAS. H. WALKER
CITY CLERK-COMPTROLLER

Bids: February 24, 1960

Narrows Bridge—Brooklyn Tower & Staten Island Tower

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., as follows:

Until 11 A.M. Wednesday, February 24, 1960

For Narrows Bridge Contract No. NB-2B, Brooklyn Tower. The bid must be accompanied by a deposit in the amount of $250,000.

and

For Narrows Bridge Contract No. NB-2S, Staten Island Tower. The bid must be accompanied by a deposit in the amount of $250,000.

Bidders may submit bids for either one or both of the above contracts.

Plans, specifications and contract documents may be purchased at the office of the Authority for $25.00, which will not be refunded.

Bids: February 16, 1960

Narrows Bridge Cables and Suspenders

TRIBOROUGH BRIDGE AND TUNNEL AUTHORITY

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., as follows:

Until 11 A.M. Tuesday, February 16, 1960

For Narrows Bridge Contract No. NB-3, Cables and Suspenders. The bid must be accompanied by a deposit in the amount of $500,000.00.

Plans, specifications and contract documents may be purchased at the office of the Authority for $25.00, which will not be refunded.

Bids: February 29, 1960

Feeder Road Program

NOTICE:
New Postponed Bid Date: February 29, 1960
Original Bid Date: January 14*, 1960

MINISTRY OF PUBLIC WORKS
REPUBLIC OF EL SALVADOR
BIDS: JANUARY 14*, 1960
NOTICE TO CONTRACTORS

The Ministry of Public Works of the Republic of El Salvador advises that on January 14,* 1960, bids will be received for the construction of a major portion of the proposed Feeder Road Program of the country. The Specifications, Plans and Contract Documents will be for sale in El Salvador on December 9, 1959.

All Contractors interested in taking part in this bidding are requested to obtain the necessary Documents, Plans and Specifications from the Office of the Proveeder Especifico de Obras Publicas, Edificio Morazan, 8ª C. P., San Salvador, El Salvador, C. A. All requests must be accompanied by a certified check in the amount of One Hundred Sixty Dollars which will not be returned.

MINISTRY OF PUBLIC WORKS
REPUBLIC OF EL SALVADOR,
C. A.

*New Postponed Bid Date: February 29, 1960

OFFICIAL PROPOSALS

Bids: February 18, 1960.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and Canal Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., eastern standard time on the 18th day of FEBRUARY 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. NICKERSON, District Engineer, 353 Broadway, Albany 1, New York						
Essex (Rte. 86)	FARC 60-16	Jay-Lake Placid, Pt. 1, S.H. 5540 Project F-876(5)	1.02	Asph. Conc. Pavt. Plate Gird. Br. 137′ Sp.	$24,000 Plans $5	$424,000
Saratoga	R.C. 60-13	Various State Highways on Rtes. Nos. 67, 147, 50, 29, 9P and 9N	....	Removal of 237 Trees	$600 Plans $5	10,000
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Oneida (Rte. 46)	FARC 60-14	Delta-Westernville, S.H. 1141 Rome-Northwestern, Pt. 1, S.H. 561 Project S-372(2)	4.42	Asph. Conc. Type 1A Prestressed Conc. Comp. Beam 76′ Br. Sp.	$54,000 Plans $5	982,000
DISTRICT No. 3, E. E. TOWLSON, Acting District Engineer, 333 E. Washington Street, Syracuse, New York						
Cortland (Rte. 11 & 13)	FAC 60-4	City of Cortland: Arterial Highway Tompkins and Port Watson Streets Project U-481(7)	2.35	Asph. Conc. Type 2A Pavt.=2.32 Mi. Misc. Work=0.03 Mi.	$68,000 Plans $5	$1,231,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Monroe	M 60-3	Court St. Dam City of Rochester	....	Clean. and Paint. Sector Gate No. 1	$275 Plans $10	5,000
Monroe (Int. Tour. Rte. 490)	FIC 60-6 FAC 60-9	Interstate Route Conn. 580 Rochester City-Eastern Expressway, Part 1 East City Line Interchange and City of Rochester: Outer Loop Arterial Highway (Highland Ave. to Int. Rte. 580) Project I-1107 (11), U- 1093 (4)	0.94	9″ Cem. Conc. Pavt., 2 @ 50′ Var. Wide=0.94 Mi. (Asph. Conc. Type 1A and Type 2A on Interchange) 4 Hwy. Seps. Comp., I-Beam, 4 Sp. 321.5′, 3 Sp. 143.5′, 4 Sp. 182′, 1 Sp. 62′; 2 R.R. Seps. Comp., I-Beam, 5 Sp. 381.6′ 3 Sp. 135′; 1 Hwy. Sep. Comp. Deck Gird., 2 Sp. 234.4′, 2 R.R. Seps. Thru Pl. Gird., 4 Sp. 352.7′; 1 Sp. 57′	$270,000 Plans $10	$4,876,000
DISTRICT No. 6, J. H. THOMAS, District Engineer, 30 West Main St., Hornell, N. Y						
Steuben (Rte. 248)	FARC 60-15	Canisteo-Whitesville, Pt. 4, S.H. 8104 Canisteo-Whitesville, Pt. 5, S.H. 8204 Project F-367(6)	2.45	Asph. Conc. Pavt.=2.44 Mi., Misc. Work=0.01 Mi., 3 Comp. Beam Brs., 2 Sp. 100′, 1 Sp. 63.3′, 1 Sp. 75.0′	$42,000	753,000
DISTRICT No. 7, R. W. SWEET, District Engineer, 444 Van Duzee Street, Watertown, New York						
Clinton (Int. Tour. Rte. 87)	FITS 60-1	Interstate Route 502. Sect. 7D-2 Twin Bridge Road-Canadian Border Project I-87-4(16)	1.96 (4.50 Acc.)	Traffic Signs and Delineators	$1,800 Plans $5	33,000
DISTRICT No. 8, K. G. RAUER, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Rockland (Rte. 303)	FARC 60-11	New Jersey State Line-Congers Pt. 1, S.H. 1898 New Jersey State Line-Congers Pt. 2, S.H. 8448 Project U-528(8)	1.19 (0.37 Acc.)	9″ Cem. Conc. Pavt. 2 @ 24′ Wide=1.14 Mi., Misc. Work=0.05 Mi. (Acc.=0.22 Mi. Asph. Conc. Pavt. and 0.15 Mi. Cem. Conc. Pavt.)	$55,000 Plans $5	1,000,000
Westchester	TSP 60-1	Taconic State Parkway: Kitchawan Road Interchange, Northeast Ramp	0.39	8″ Cem. Conc. Pavt.=0.33 Mi. Misc. Work=0.06 Mi.	$7,000 Plans $5	130,000
DISTRICT No. 9, J. C. FREDERICK, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Rte. 17C)	FARC 60-17	Lestershire, S.H. 125 Hooper-Johnson City, S.H. 5699 Project U-401(9), U-1143(2)	1.94 (1.96 Acc.)	Asph. Conc. Pavt.=2.33 Mi. Grading and Drainage=1.57 Mi.	$190,000 Plans $5	3,476,000
Delaware, Sullivan, New York & Wayne, Pa.	I, Br. 60-2	Hancock; Lordville, N. Y.-Equimunk, Pa; Kellams Bridge, N. Y.-Stalker, Pa.; Cochecton, N. Y.-Damascus, Pa.; 4 Bridges	....	Clean. and Paint. 5 Bridges, 2 Suspension and 2 Thru Trusses	$1,800 Plans $5	32,500
DISTRICT No. 10, M. E. GOUL, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Queens	FAHHE 60-1	Horace Harding Expressway, Section 2 (Contract 7) (Oceania Street to Nassau County Line) Project U-862(21)	2.84	Fencing, Guide Railing, Signs, Access Road, Misc. Work	$31,000 Plans $5	575,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN

SUPT. OF PUBLIC WORKS

Bids: February 18, 1960

Soil Explorations and Foundation Investigations

NOTICE TO CONTRACTORS

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m. Eastern Standard Time on February 18, 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON PHYSICAL RESEARCH PROPOSAL NUMBER 7, PROJECT NUMBER 5, ONONDAGA, ULSTER AND QUEENS COUNTIES, WHICH CONSTITUTES CONTRACT SPEC. NO. SM-144.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.

(b) Mr. Wm. P. Hofmann, Principal Soils Engineer, New York State Department of Public Works, Bureau of Soil Mechanics, Intersection of Route 9 and S.H. 155, Latham, New York.

(c) Mr. William Mende, Principal Building Construction Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50 percent of deposit.

The engineer's estimate of cost for this work is $9,930.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,000.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders."

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPERINTENDENT OF PUBLIC WORKS

District of Columbia—Building Construction—Dept. of Buildings & Grounds, D. C., February 1, 1960. CONSTRUCTION AND COMPLETION OF ADDITION TO MAURY ELEMENTARY SCHOOL, CONSTITUTION AVENUE BETWEEN 12TH PLACE AND 13TH STREET, N.E., WASHINGTON, D.C. (INVITATION NO. C-6088-B/1 READV.) Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Division, Procurement Office, D. C., Rm. 404, 499 Pennsylvania Ave., N.W., upon deposit of a certified check for $50.00 per set, payable to D. C. Treasurer. (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 2:00 PM, EST, March 1, 1960, in Room 424, 499 Penn. Ave., N.W.

OFFICIAL PROPOSALS

Bids: March 8, 1960

Three Airplane Hangars and Cargo Building

NEWARK, NEW JERSEY

Bids are invited for the purchase and removal of three unoccupied airplane hangars and a cargo building located at Newark Airport, New Jersey, offered as is on an any or all basis.

The hangars are of steel frame and truss construction with clear spans of approximately 120' x 120' x 20' high. One and two story leantos also of steel frame construction are located on both sides of each hangar. Manually operated glazed steel hangar doors at both ends of each hangar permit full 120' openings.

The cargo building is a bolted wood frame structure with bolted wood trusses and concrete block walls. It is approximately 200' x 200' x 25' high and erected on a 3'6" high reinforced concrete platform 230' x 260'.

All buildings are complete with heating plants.

Bids are due on or before 3:00 P.M., Tuesday, March 8, 1960.

For photographs and bid papers write or phone:

The Port of New York Authority
Purchase & Administrative Services Dept.
111 - 8th Avenue, New York 11, N. Y.
Tel: ALgonquin 5-1000, Ext. 206

Bids: March 8, 1960

George Washington Bridge Lower Level Expansion New Jersey Approach Fort Lee Parking Area

THE PORT OF NEW YORK AUTHORITY
CONTRACT GWB-190.030

Sealed proposals for the construction of the Fort Lee Parking Area for the lower level expansion of the George Washington Bridge in the area bound by New South Marginal Street, Lemoine Ave., Main Street and Center Ave. in the Borough of Fort Lee, New Jersey, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, March 8, 1960, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, February 11, 1960.

CONTRACTORS
WATCH
THIS SECTION

for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

Bids: February 25, 1960

Triborough Bridge and Tunnel Authority

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, N. Y., until 11:00 A.M. Thursday, February 25th, 1960, as follows:

For Throgs Neck Bridge Contract No. TN-10E, Bronx and Queens Approaches Viaduct Roadway Slabs. The bid must be accompanied by a deposit in the amount of $100,000.00.

Plans, specifications and contract documents may be purchased at the office of the Authority for $20.00, which will not be refunded.

Bids: March 10, 1960

New Jersey Turnpike Authority

ADVERTISEMENT FOR PROPOSALS
CONTRACTS NOS. R-61A, R-61C, R-610, AND R-61E

Proposals are invited for Contracts Nos. R-61A, R-61C, R-61D, and R-61E which involves the construction of an addition and alterations to the Administration Building of the New Jersey Turnpike Authority, at Interchange 9, New Brunswick, in Middlesex County, New Jersey as follows:

Contract No. R-61A—General Construction
Contract No. R-61C—Heating, Ventilating & Air Conditioning
Contract No. R-61D—Plumbing
Contract No. R-61E—Electrical Work

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 o'clock, Eastern Standard Time, on the morning of March 10, 1960, at which time and place said proposals will be publicly opened and read.

Contract documents may be examined during office hours on or after February 10, 1960, at the office of the Authority and will be furnished upon payment of Fifteen Dollars ($15.00) for each set, not refundable.

NEW JERSEY TURNPIKE AUTHORITY
Joseph Morecraft, Jr., Chairman

February 3, 1960

Bids: February 23, 1960

Construction of Niagara Parkway Bellevue Avenue to Devil's Hole State Park in Niagara Falls and Town of Lewiston, Niagara County, New York

POWER AUTHORITY OF THE STATE OF NEW YORK
ADVERTISEMENT FOR PROPOSALS
SPECIFICATIONS NO. 627.03
NIAGARA CONTRACT NO. N 19

NOTICE TO CONTRACTORS: The Power Authority of the State of New York will receive sealed proposals for the construction of Niagara Parkway, Bellevue Avenue to Devil's Hole State Park, located in Niagara Falls, and Town of Lewiston, Niagara County, New York, until 10:30 A.M. Eastern Standard Time on the 23rd day of February, 1960, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The principal items of work are: Estimated:

192,000 C.Y. Excavation
2,580 C.Y. Concrete for Structures
21,070 L.F. Reinforced Concrete Culvert Pipe, 12" to 48" Dia.
136,600 Lb. Bar Reinforcement for Structures
43,900 Lb. Structural Steel
7,090 L.F. Metal Railing
16,600 C.Y. Cement Concrete Pavement
10,800 L.F. Aluminum Chain Link Fencing, 3'-6" High

Length of Project—Approximately 2.0 miles.

The work shall be completed on or before September 1, 1961.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York, at the Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents, and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's New York Office and the Authority's field office, 2640 Main Street, Niagara Falls, New York, and in the offices of the Engineer, Clarke and Rapuano, 830 Third Avenue, New York 22, New York, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the gross sum price bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5275) will be received at Huron, South Dakota, until 10 a.m., Central Standard Time, March 22, 1960, for furnishing labor and materials for constructing foundations and furnishing and erecting steel towers for Oahe-Fort Thompson 230-kilovolt Transmission Line, Transmission Division, South Dakota, Missouri River Basin Project. Location Hughes, Hyde and Buffalo Counties, South Dakota. Principal items are 8,400 lin. ft. excavation for 30 and 36-inch diameter type A footing; 2,800 cu. yds. concrete; 2,000 lin. ft. driving timber piles; 273 bodies—furnishing 50, 55 and 70-foot tower bodies; 273 towers—erecting 50, 55 and 70-foot tower bodies complete with required leg extensions; and other work. Completion time 625 days. For particulars, address Bureau of Reclamation, P. O. Box 2553, Billings, Montana; P. O. Box 825, Huron, South Dakota; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5279) will be received at Ephrata, Washington, until 10 a.m. Pacific Standard Time, March 15, 1960, for furnishing labor and materials for earthwork, concrete lining, and structures, Block 80 laterals and wasteways, West Canal laterals, Columbia Basin Project, Washington. Location northwest of Othello, Washington. Principal items are 717,000 cu. yds. excavation; 18,100 cu. yds. concrete in lining; 1,320 cu. yds. concrete in structures; 10,887 lin. ft. concrete pipe; various slide gates and miscellaneous metalwork; and other work. Completion time 450 days. For particulars, address Bureau of Reclamation, Box 368, Ephrata, Washington, or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5280) will be received at Denver, Colorado, until 2 p.m., Mountain Standard Time, March 10, 1960, for furnishing 110-inch steel outlet pipe (estimated weight 1,500,000 pounds) and walkway (estimated weight 75,000 pounds) for Navajo Dam, Colorado River Storage Project, Colorado-New Mexico. Delivery is desired within 420 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

Sealed bids for the installation of central airconditioning at the U. S. Post Office & Courthouse (New), Pittsburgh, Pa., Project No. 00807, will be received until 2:00 P.M., EST, February 23, 1960 and then publicly opened. Bidding material may be obtained from the Design & Construction Division, 12th Fl., West, Public Buildings Service of the General Services Administration, 250 Hudson Street, New York 13, N. Y. and from the Custodian of the U. S. Post Office & Courthouse (New), Pittsburgh, Pa.

EMPLOYMENT OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $39.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

FEBRUARY 25TH ISSUE CLOSES FEBRUARY 15TH

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

ADDRESS BOX NO. REPLIES TO: Box No. Classified Adv. Div. of this publication. Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

(Additional Positions Vacant ads on opposite page)

Sales Engineer: To represent expanding pre-stressed concrete plant in Southeastern Wisconsin area. Structural design background in building field considered helpful. Send complete resume and salary requirements to P-3492, Engineering News-Record.

Civil Engineer—capable of supervising civil engineering department in established consulting engineering firm. Experienced in water and sewerage facilities, municipal work and surveying. Must have sales and organizational ability to expand present department. Salary commensurate with ability. P-3495, Engineering News-Record.

One Chief of Party—Must be capable of handling survey parties and have thorough understanding of municipal survey work pertaining to rights of way, curb and street line and grade, sanitary and storm sewer survey plans and profiles, and general survey work. Apply for appointment—Office of Township Engineer, 1 Main Street, Woodbridge, N. J., between 9 A.M. and 5 P.M.

One Transit Man—For inside drafting room and outside field work. Must have thorough knowledge of engineering, drafting and calculating, and be thoroughly familiar with deed and conveyance, and tax map work. Apply by appointment—Office of Township Engineer, 1 Main Street, Woodbridge, N. J., between 9 A.M. and 5 P.M.

Two Jr. Engineering Aides or Chainmen—To work in survey parties. Apply by appointment—Office of Township Engineer, 1 Main Street, Woodbridge, N. J., between 9 A.M. and 5 P.M.

Engineer—Draftsman—Surveyor: With small general contractor. Location, Ocean City, Maryland. Degree in engineering not required. Want man to assist in surveying, drafting, work on water and sewer plans, foundation layouts, assist in estimating, etc. under supervision of a registered professional engineer and surveyor. Salary 5 to 6 thousand. Submit resume' of experience and references to Geo. Bert. Cropper, Ocean City, Md.

Water Superintendent. Applications being accepted until February 15 for water superintendent to manage complete water works system. Includes 3 MGPD lime-soda ash treatment plant. Salary $6000. per annum. Age range 30-50. Send applications to I. L. Samuelson, City Engineer, Storm Lake, Iowa.

General Superintendent—Sewer, Water, Highway and Subdivisions, Southwestern Ohio. Write giving full resume to: P-3545, Engineering News-Record.

Sales Engineer with experience on Crushing, Sand and gravel, concrete plants and conveyor layouts. Truck mixer sales experience also desirable. In applying state full qualifications and experience. Good permanent position with old established equipment distributor in Eastern Territory. P-3598, Engineering News-Record.

Assistant to Sanitary Engineer graduate Civil or Sanitary; Military obligation fulfilled, some experience in sewerage desirable: Salary: $5500-$5800: Location: Northeast Lake County, Ohio: Submit Resume. P-3619, Engineering News-Record.

Construction superintendent with general superintendent potential wanted by active general contractor doing large volume with own forces. P-3646, Engineering News-Record.

• POSITIONS VACANT

Engineers—Professional engineers to fill positions as Senior Sanitary Engineer with New York State agencies in Albany and other up-state cities. A Senior Sanitary Engineer takes charge of district environmental sanitation or is staff specialist in a major phase of public health engineering. Requires P.E. license, engineering degree and progressively responsible experience with two years or more in sanitary or public health engineering. Salary $7818 to $9408 in five annual increases. For detailed information write to Recruitment Unit, New York State Dept. Civil Service, Box 21B, The State Campus, Albany 1, N. Y.

Sales Engineer—Civil or equivalent with good sales experience for a large precast wall panel plant. Mail resume to: Midwest Concrete Industries, West Des Moines, Iowa.

Have opening for Engineering Graduate, with some field experience in building construction, to assist in estimating, planning and management of public and commercial building and housing projects in Southeast. Opportunity for advancement. Application including age, experience record and salary requirements should be mailed to Algernon Blair, Inc., P. O. Box 749, Montgomery 2, Alabama.

Water & Sewer Superintendent, age 32 to 55, must be college graduate with specialization in civil, hydraulic, sanitary or business engineering, and supervisory experience in operation and maintenance of water treatment and distribution system. Salary range $558.00 to $677.00. Write City Auditor, City Hall, Grand Forks, North Dakota.

Superintendent of Inspection, to supervise electrical, plumbing and building inspectors, age 30 to 55, experience in inspection work or actual construction in related fields. Salary range $485.00 to $586.00. Write City Auditor, City Hall, Grand Forks, North Dakota.

Senior Engineer, age 25 to 50, must have engineering degree with at least 4 years experience. Salary range $558.00 to $677.00. Write City Auditor, Grand Forks, North Dakota.

Manager of Construction: to head construction department of firm doing mechanical and general industrial contracting. Engineering degree plus wide knowledge of construction methods and several years experience as top man on heavy construction projects. All replies held in strict confidence. Firm having vacancy will not be given your name until you are notified. Write to Dr. M. H. Feil, Consultant, 895 North Center Drive, Newark, Ohio.

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• POSITIONS WANTED

Executive-Construction Equipment — Over thirty years experience in highway and heavy construction. Last 12 years head of equipment division of large heavy construction co. Have ability and experience to handle equipment specifications, purchasing, financing, accounting, management of large organization, and ability to cope with all maintenance problems regardless of the most difficult field conditions. PW-3451, Engineering News-Record.

• POSITIONS WANTED

Chief Highway Engineer—Broad experience in design and construction of expressways, parkways and municipal facilities. Registered P. E. in many States. Desires key position with engineering organization or contractor. Now located New England but will consider other locations in U. S. PW-3496, Engineering News-Record.

C. E. Executive. 8 years heavy, marine, pipeline, road, foreign construction and sales experience. Speak several languages. PW-3513, Engineering News-Record.

Attention General Contractors: Chief Estimator and/or Project Manager available for immediate connection. Proven record of four to six million volumn per year in strict competition. Minimum, salary required $12,-000.00 per year. Contact William C. Dick, 3507 Cardinal Blv'd., Daytona Beach, Florida. Phone—Clinton 3-9955.

Soils Engineer—MCE, P. E. Age 28 experienced in testing, analysis, design and construction. Resume on request. PW-3568, Engineering News-Record.

Project Manager, B.S.C.E., 16 yrs. exp., hvy. Const., Hwys., flood control, earthwork, bldgs., Govt. contracts, field & office. E. Elswirth, P. O. Box 48 Clayton 5, Mo.

Heavy & highway grade Superintendent full charge, engineering estimating experience. PW-3544, Engineering News-Record.

Project-Manager 23 yrs. exp. heavy constr. major U. S. & O. S. projects, bridges, waterfront, highways, earthwork, etc. Top references. PW-3529, Engineering News-Record.

Construction Supt. General Construction. Would like to permanently relocate in the far west, or south west. 8 years with present Gen. Contr. in the east. Experience mostly schools. Cost conscious, experience in quantity surveys, cost reporting, and field engineering. Running school job at present time, PW-3471, Engineering News-Record.

Estimator—Chief Engineer: With experience in both field and office on all types of work, invites replies from progressive Heavy Construction Contractors. PW-3602, Engineering News-Record.

Executive—Contract Manager, Attorney, Administrator, 15 yrs Legal—Construction Experience, Govt Contracts, Claims, Employed. PW-3599, Engineering News-Record.

Executive-Engineer: creative and adaptable C.E. with 17 yrs. well rounded exp. in tech. administration, product development, sales & construction. Excellent in client relations. Seeks challenging administrative growth position. PW-3563, Engineering News-Record.

Civil Engr. Registered, 10 yrs. experience in design and construction of highways, utilities and municipal improvements. Desires career position with advancement possibilities. PW-3592, Engineering News-Record.

Gen'l Sup't—Estimator—Exp. Airfield, state, city paving projects, exc, base, concrete, asphalt. Will relocate, salary open. PW-3596, Engineering News-Record.

Geologist Engineering Minor—5 years experience in Civil Engineering, age 28, family; desiring position with responsibility involving a phase of geology. Experienced in subdivision layouts, including water, sewer, and grading, bridge and highway design, soils investigations, surveying and drafting. PW-3580, Engineering News-Record.

General foreman blasting. PW-3585, Engineering News-Record.

Superintendent of shaft & tunnel and general rock work. PW-3586, Engineering News-Record.

Project Manager or General Superintendent, field supervision and general management. Thoroughly experienced industrial, commercial and institutional projects in U. S. and O. S. Now employed available 90 days. PW-3662, Engineering News-Record.

Professor, struct. or civil, 20 yrs. teaching, research, and industrial experience, Ph.D. PW-3615, Engineering News-Record.

Supt. Const., 20 yrs. Institutional, Commercial, Industrial. Engineer. PW-3621, Engineering News-Record.

Project Manager—Estimator, twenty years with one company. Field and management experience in heavy and industrial construction. PW-3661, Engineering News-Record.

Civil Engineer, Surveyor, Computer, Chief of party, twenty years Highways, Sewers, Waterlines, Right of way and realty surveys. New Jersey registration. Will relocate. PW-3614, Engineering News-Record.

(Continued on opposite page)

• POSITIONS WANTED
(Continued from preceding page)

Estimator: P.E. 25 years background as Chief Estimator & Project Manager takeoff, pricing, purchasing, sub-contracts present volume to eight million a year all types. Want to relocate. PW-3668, Engineering News-Record.

Architectural And Construction Engineer, 42, 15 yrs. experience in supervision of large jobs. At present in charge of supervision for large Hotel construction in Caribbeans. Free to travel, Canadian, looking for position of Resident Engineer and/or Architect, preferably (but not condition) Hotel construction. Excellent references, linguist, resume on request. Available from May or June 1960. PW-3674, Engineering News-Record.

Executive-Mechanical Construction. Age 43 —can handle estimating, purchasing, marketing, negotiating, customer relations, etc. Experienced as manager of decentralized branch operation. PW-3675, Engineering News-Record.

Civil-Struct. Eng. with 21 years as a designer and project engineer on highway, bridge, and building projects (with computer experience); wants position in charge of department doing the above work. PW-3642, Engineering News-Record.

Seven Years Civil Engineering experience, in surveys, office and construction supervision. Age 29, married. Willing to locate Eastern States. PW-3647, Engineering News-Record.

Heavy Equip. Master Mechanic, Shop Field or Truck Foreman. Age 49, 26 yrs. experience maintenance, repair and rebuilding Shovels, Cranes, Dozers, Compressors, Trucks etc. Expert Gas and Diesel Mechanic, good Operator, Rigger, Electrician. Completed 6 Foreign Contracts. Available February. Can bring crew. Have equipped pick-up, mobile home. Operating Engineers Union member. Locate anywhere. PW-3660, Engineering News-Record.

General superintendent would like employment with small construction company. Self employed at present time. Experience include, pile driving, heavy excavation, slab bridges and heavy building foundations. 20 years experience, 40 years of age. State side or over seas. Best of reference and health. PW-3663, Engineering News-Record.

Project Engineer/Chief Draftsman—experienced in supervision of engineering of large industrial architect-engineer projects, drafting room management, owner liaison and specification writing. Will relocate in U. S. or abroad. PW-3666, Engineering News-Record.

Cons't. Sup't.: Roads & Airports, age 43, 25 yrs exp. in all phases of road cons't.: grade & drain, asphalt & concrete paving. Engineering background. From bidding to completion. PW-3667, Engineering News-Record.

Outstanding structural-civil engineer, age 39. 15 years experience in commercial, institutional and industrial projects (some nationally well-known). Ph.D. Author of engineering book and papers. Proven administrative ability. Domestic or Foreign. PW-3669, Engineering News-Record.

Graduate Civil Engr.—12 years experience in structural design and construction. Interested in consulting field. Foreign position acceptable. PW-3670, Engineering News-Record.

Salesman—32. Desires position with manufacturer of road equipment. Past five years selling building materials to contractors, dealers and architects. Will relocate. Write PW-3671, Engineering News-Record.

Young Civil Engr. Seeks position in central or South Fla. Age 28, family man, ambitious, responsible, not afraid of long hours. Can qualify as Asst. to Job Supt., Proj. Engr., Chief Estimator. Experienced in cost & Progress. Highway & sewer design & const. Former heavy equip. operator. Presently employed. PW-3613, Engineering News-Record.

Public Relations Director, 35, past ten years one employer on highway and building construction projects. Own press camera, handle all press and trade media relations, good public speaker, experienced in community relations, will travel. Prefer northeast, but will relocate. PW-3680, Engineering News-Record.

Structural Engr.—BSCE—30—6 yrs. experience in bridge design. Interested in bridge or diversified structural design with consulting firm, Eastern U. S. PW-3677, Engineering News-Record.

Estimator—Civil Engineer, semi-retired. Lifetime experience all types of construction. Wishes part-time connection. PW-3676, Engineering News-Record.

Design Engineer—Highways, Airports. Bombing Ranges—alignment, grading, drainage. R.O.W. PW-3679, Engineering News-Record.

FOREIGN EMPLOYMENT DISTRICT INDUSTRIAL

BS or MS Degree Industrial or Mechanical Engineering with post graduate studies production control, tool design, material handling, industrial psychology, etc. Practical industrial experience required with at least 2 years supervisory capacity in fabricating industry. Experience as machinist or tool maker desirable.

Excellent opportunity large copper company Chile, South America. 2 year contract with transportation both ways and salary while traveling paid by company. In reply give complete details.

P-3651, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

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Permanent new position for graduate civil engineer in the salary range of $511 to $588 a month (plus longevity pay). Candidates with outstanding qualifications may be hired above the minimum. Vacation, sick leave, dual pension program, and other fringe benefits. Must be U.S. citizen and possess an EIT certificate. Some related experience desired to work in design and construction of sewer, water, street, sidewalks, and curbs. Travel expenses paid on invitation and moving expenses paid for selected candidate. Personnel Dept., 404 City-County Bldg., Madison 9, Wisconsin.

WANTED—SUPERINTENDENT

Must be capable in all phases of highway and bridge construction. Location New England with established firm. Permanent position if qualified. State qualifications, references and salary desired.

P-3648, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

EXPERIENCED CONSTRUCTION MAN WITH EXECUTIVE BUSINESS TRAINING

To assume top management of medium-sized company engaged in construction of waterworks, sanitary engineering facilities and miscellaneous heavy construction in South Florida. Engineering training helpful. Successful past accomplishments and demonstrated ability in negotiation and fair dealing with interests of owners, management, labor and stockholders essential. Good salary and opportunity to share in profits. Submit detailed letter of application stating age, education, experience, positions held, past earnings record, character and business references, and any other information which will be helpful, including recent photograph. Personal interviews will be arranged prior to selection.

P-3649, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

SALES ENGINEERS

A major steel company has need for sales engineers to promote and sell fabricated products in Middle Atlantic States. Excellent opportunities for men 25 to 30 years old with engineering background and a desire for sales work. Attractive salary with company car, expenses and bonus plan.

SW—2763 ENGINEERING NEWS-RECORD
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

ENGINEERS AND MATERIALS INSPECTORS WANTED

TVA has openings on a large hydro- and steam-electric program for experienced civil, structural, electrical, and mechanical engineers in its Division of Design located in Knoxville, Tennessee, and for materials engineers and inspectors of materials located in various district offices, principally in the north and east.

These positions are at the following grades and rates of pay:

Civil, Mechanical, Electrical, and Materials Engineers, grades SD-2 and -3 $6200-$7150.

Inspectors of Materials, grades SE-5 and -6 $5825-$6625.

The engineering jobs require a college degree in engineering or its equivalent with from one to three years of experience in design and specification work, or in inspection and testing work for materials engineers. The inspector of materials jobs require some college training in engineering or equivalent training and experience in making engineering inspection and tests of mechanical structural, and electrical equipment and materials.

All jobs carry automatic within-grade increases for satisfactory service, liberal vacation leave, sick leave, and retirement, hospitalization, and insurance benefits.

Write to:

TENNESSEE VALLEY AUTHORITY
Division of Personnel,
Knoxville, Tennessee

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Station "B", Montreal, Quebec

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Leading construction firm in Southeastern New England desires graduate architect or structural engineer with a minimum of 8 years experience.

Must have a thorough knowledge of industrial and commercial building design, drafting ability, and able to do quantity take-off.

Must be familiar with construction procedures as well as current developments in economic building practices.

Registration not necessary. Reply with resume, references, and salary requirements.

P-3555, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

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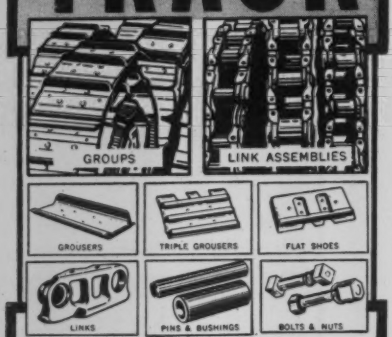

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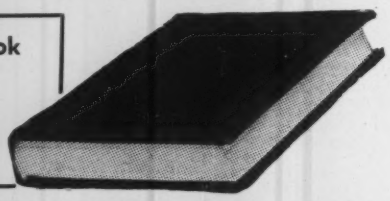

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CLASSIFIED ADVERTISING INDEX

Albert Pipe Supply Company 97
Anderson Equipment Company 96
Associated Pipe & Fitting Co. 97
B & V Equipment Company, Inc. 96
Conmaco, Inc. 98
Contractors Machinery Company 96-97
Cummings, Edward E. 96
Dyer Company, Inc., W. H. 97
Evdel Industries 96
Goodman & Sons Co., Al J. 96
Ideal Supply Company 97
Madison, City of 95
Manitowoc-Forsythe Corp. 97
Midwest Steel Corporation 97
Miller & Long Company, Inc. 96
Mississippi Valley Equipment Co. 98
Morrison-Knudson Company, Inc. 98
National Blue Print Company 96
National Schools of Construction 96
Seaboard Steel Corporation 98
Stanhope Inc., R. C. 98
Tennessee Valley Authority 95
Wikstrom Inc., A. S. 95, 96
Williams Construction Company 96
Wilson Engineering Corporation 96

ADVERTISERS IN THIS ISSUE

Acker Drill Co., Inc. 48
Allis-Chalmers 1
American Bitumuls & Ashphalt Co. 46
American Foreign Insurance Association ... 58
American Steel & Wire Div., United States Steel Corp. 30-31
Armco Drainage & Metal Products Inc. ..... 2nd Cover
Automotive & Aircraft Div., American Chain & Cable Company, Inc. 56

Bay City Shovels, Inc. 13
Bethlehem Steel Co. 40-41
Borden Metal Products Co. 20
Broderick & Bascom Rope Co. ..... 4th Cover

Charles Bruning Co., Inc. 71
Caterpillar Tractor Co. 79

Charles Machine Works, Inc. 38
John Deere Industrial Div. 49-52
The Deming Co. 99
Dorr-Oliver, Inc. 68

The Eimco Corporation ..... 3rd Cover
Elgood Equipment Corp. 68
Euclid Div., General Motors Corp. 84-85

L. B. Foster Co. 18

Homelite Div., Textron Inc. 64
The Frank G. Hough Co. 4-5

Irving Subway Grating Co., Inc. 76-77

Johns-Manville Corp. 83
Johnston Pump Co. 12

Kern Instruments Inc. 47
The Kinnear Mfg. Co. 99

Layne & Bowler, Inc. 6-7
Lock Joint Pipe Co. 16

Mack Trucks, Inc. 74-75
The R. C. Mahon Company 57
Manitowoc Engineering Corp. 8
Marion Power Shovel Co. 37
Marlow Pumps 45
Massey-Ferguson Industrial Division 69
Maxon Construction Company, Inc. 9
Mayo Tunnel & Mine Equipment 73
Mueller Co. 29

National Tube Div., U. S. Steel Corp. 10-11
Northern Gravel Company 72

Pacific Crane & Rigging Co. 61
Phoenix Bridge Company 68
H. K. Porter, Inc. 65
Portland Cement Association 14-15
Precision Instruments Inc. 77
Presstite Division, American-Marietta Co. .. 3

Richmond Screw Anchor Co., Inc. 2
H. H. Robertson Company 33
John A. Roebling's Sons Corp. 59
Ross Porta-Plant 73

Servicised Products Corp. 55
Smith & Loveless Div., Union Tank Car Co. 70
A. O. Smith Corp., Permaglas Div. 48
Spencer, White & Prentis, Inc. 99
John W. Stang Corp. 77

Thompson Pipe and Steel Company 79
Truck Mixer Mfgrs. Bureau 39

Water Seals, Inc. 80
Wedge-Lock Clay Pipe Manufacturers 60
Wheel Trueing Tool Company 61
The White Motor Company 62-63

Yuba Consolidated Industries, Inc. 27

Professional Services 98

CLASSIFIED ADVERTISING

F. J. Eberle, Business Mgr.

Employment Opportunities 94, 95
Notices
Proposals 91, 92, 93
Equipment
(Used or Surplus)
(For Rent, Sales Wanted) 96, 97
Advertisers Index 98

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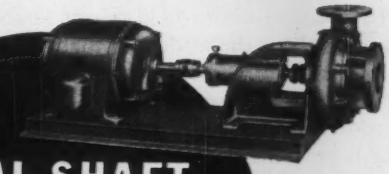

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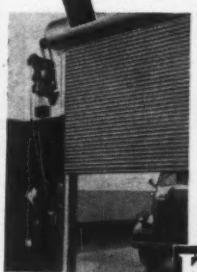

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Editorials

Find a Way

MANY CALIFORNIANS hold sincere doubts of one kind or another about the wisdom of that state's ambitious water plan, and particularly about the $1.75-billion general obligation bond issue proposed to pay for the work. As a consequence the bond issue may not pass. If it doesn't, we hope some acceptable alternative financing method can be worked out. The California water plan is too important to be abandoned.

Here is a situation where plentiful water is available, but not where it is needed most. It can be transported—but how much can be spared and who will pay how much for it are the critical problems. Such situations will arise more frequently in the future. The experience gained from the California precedent would have great value elsewhere.

There has been some criticism of the long-range planning involved in the California proposal. There is always an element of risk in such a long-range commitment, but the dangers in being too shortsighted are also great. It should be noted in California's case that the Colorado River aqueduct, which was built well beyond the immediately foreseeable needs at the time—and over some vociferous and no doubt sincere objections—made possible the desert metropolis of Southern California that now has its future so inextricably involved in the new water plan.

The opponents of the plan as now proposed should not just oppose it. They would serve their own best interest as well as the best interest of the state by finding a way to save it.

Urban Research Lags

THERE IS NEED for research into the physical problems of urban areas. Whether or not it is done through an Urban Research Council within the framework of the National Academy of Sciences-National Research Council—as proposed at this year's Highway Research Board meeting—it must be done, and soon.

Consider the rate of growth of our urban population: As the total U.S. figure grows to between 210 million and 240 million by 1975 the number of people who lived in metropolitan areas at the time of the last census (1950) will have multiplied by 1.75. Another estimate ventures that in 1980 over 80% of the nation's population will live within 160 great urban areas.

The prospect is frightening when we consider how many of our big cities today are suffering from physical ills that seem at times to defy reasonable solution. Yet there are solutions. They must be researched, developed, financed and applied. And still other solutions to the vexing urban problems must be found; the basic knowledge needed is woefully inadequate in many respects.

More information is needed about the pattern of urban development and its processes of change; about the basic motivations of people behind this trend toward urban living; about money sources and taxation for the ways and means of tackling urban problems; about transportation in all its forms, particularly its adaptability to urban situations. And about a thousand other things—many of which have solutions in physical change, as opposed to social reform.

A concentrated program of urban research is long overdue. The trend toward development of "megalopolises" has not just started. It has been recognized for years. But perhaps until now it has been mainly the sociologists, the marketing experts and other social scientists who have looked upon this trend with more than casual concern.

It is high time the physical aspects of the problem so impressed all city planners, architects, engineers, builders and government officials that they demand formation of an Urban Research Council, if that's what it will take, to concentrate on developing the knowledge on which cities of the future can be built to run.

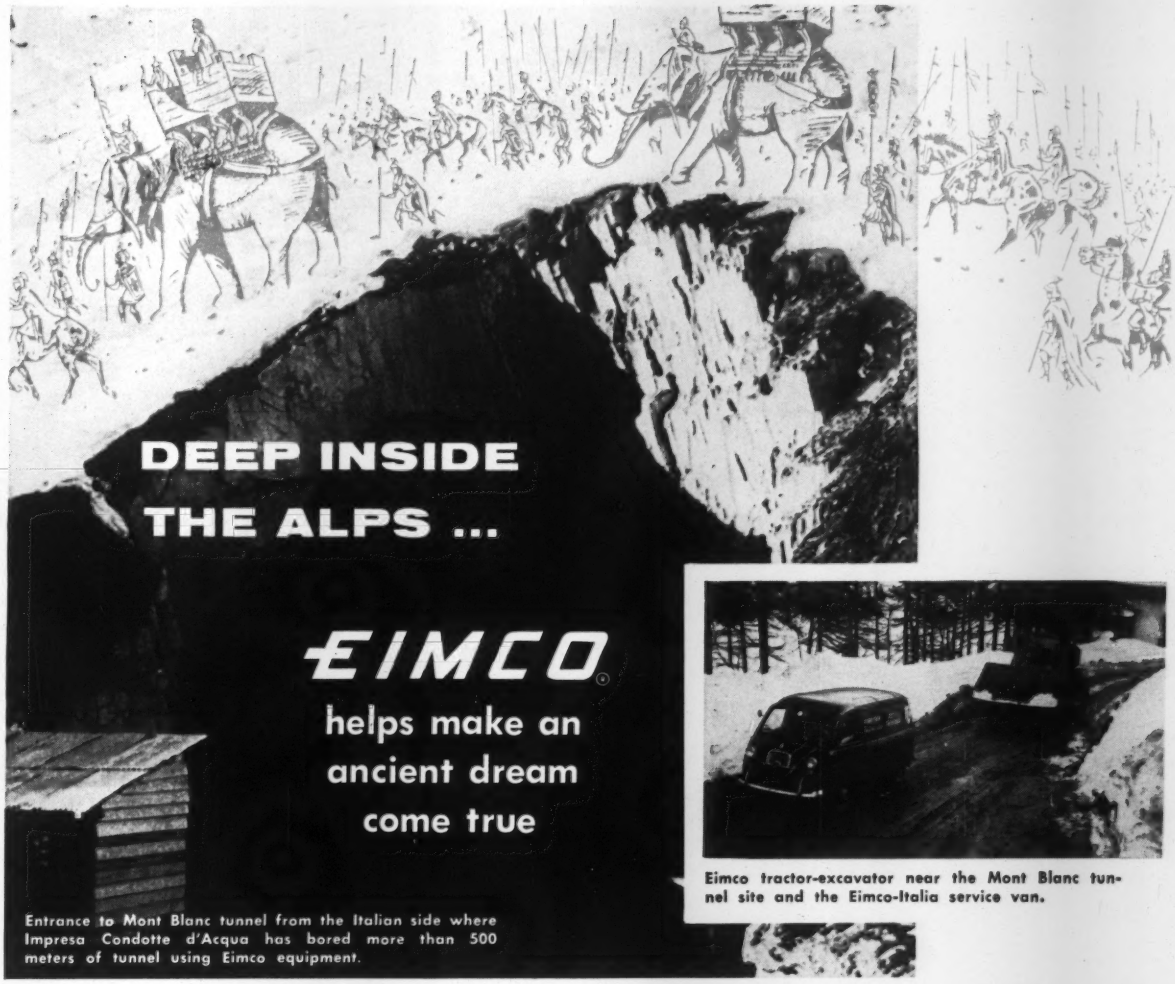
World's Fair Engineering

ANNOUNCEMENT that top management personnel are being selected for the 1964 New York World's Fair suggests that engineers and architects will be in the picture in the near future. Some will work for the Fair corporation itself. Many more will be engaged by individual companies to plan and design their buildings and exhibits.

All will have a much greater opportunity to turn out original and advanced designs than is accorded on normal commercial or public projects. It is an opportunity that should be pursued seriously rather than in a happy-go-lucky carnival spirit.

All World's Fairs in the past have fallen far short of their potential in introducing and selling new architectural and engineering concepts. True, it is possible to recall the cable-stiffened suspension bridge at Chicago's 1933 fair, the use of laminated timber and plywood columns and girders at San Francisco's 1938 exposition, the exposed steel framing of one of the domed buildings at the New York fair of 1939 and the use of cables and cantilevers at Brussels in 1958. All of these were serious attempts to create something new, or to use something familiar in a daring way. There were others, but there could have been more.

The New York fair in 1964 will be several times bigger than any ever held. The opportunity for advancing the engineering and architectural arts will therefore be commensurately grand. The persons and firms fortunate enough to participate should vow to make the best of the opportunity.



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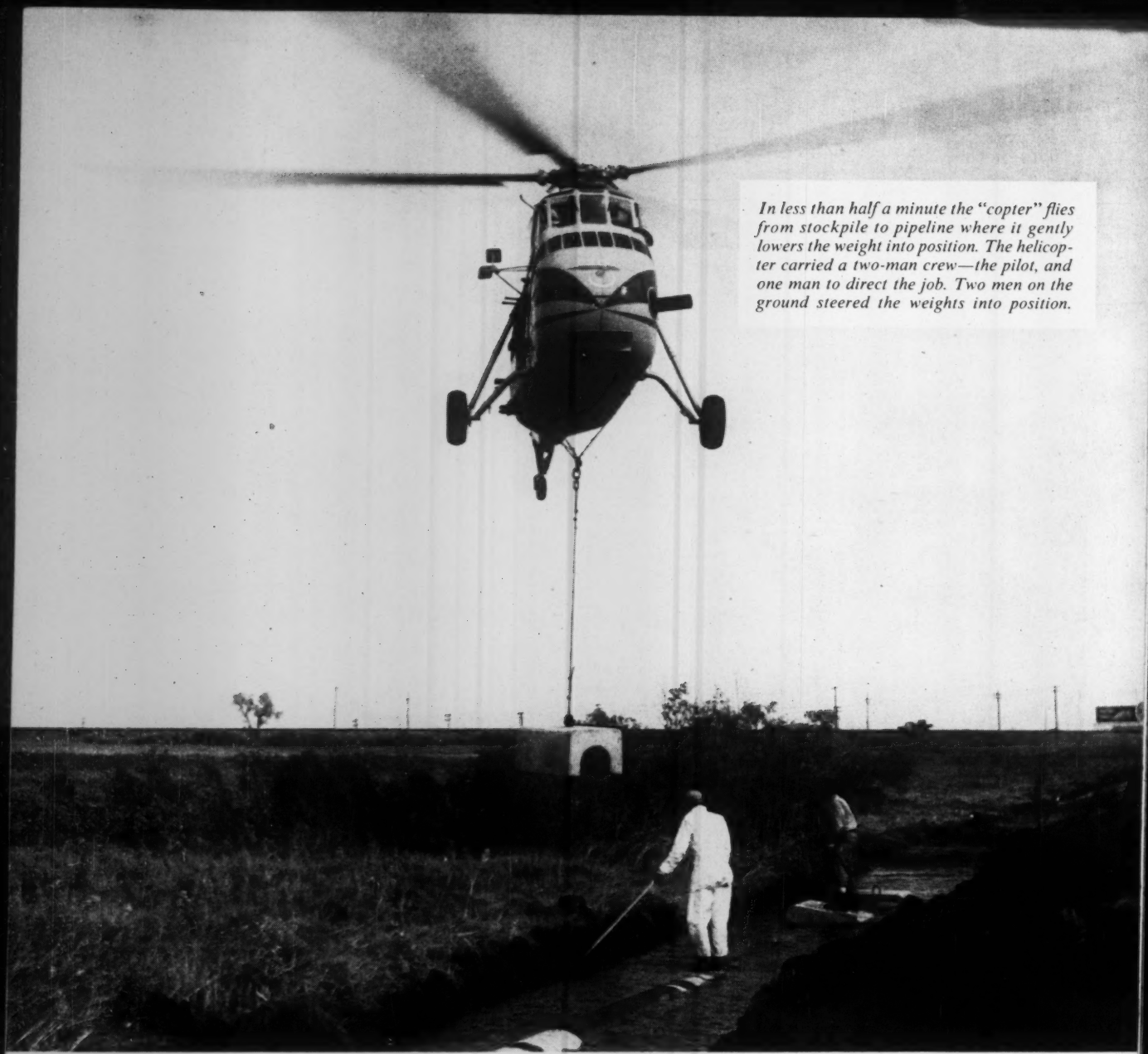

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